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## SYSTEMATIZED DELUSIONS. CAN THEY OCCUR IN ALCOHOLIC AND RHEUMATIC INSANITY?

BY

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In the May number of this JOURNAL appear certain criticisms<sup>1</sup> of an article of mine on rheumatic insanity. In these it is claimed that the histories given are imperfect, and that the reader is unable to judge for himself whether the delusions are systematized or not. Medical terms are generally used to avoid prolixity. When the meaning of such terms is undisputed, to use the term and then describe the thing itself, would be an absurd waste of space. The term systematized delusion conveys an exact idea to the mind of an Anglo-Saxon alienist, and was used by me to avoid a lengthy description. I might, therefore, offset my critic's denials by simply asserting that the denial of a fact does not disprove its existence. In my experience, systematized delusions are found in insanity from rheumatism. The assertion of my critic expresses his own experience, and no more. I am, however, willing to assume that the burden of proof rests upon me, and hence, that it becomes my duty to disprove or explain away these criticisms.

It may be admitted at the outset that my histories are perhaps too concise. It should also be recognized that the accidental omission of the word 'always' in the following sentence has made one of my statements perhaps

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<sup>1</sup> Further Notes on Insane Delusions, by E. C. Spitzka, M.D.

too exclusive: "they strongly resemble the delusions of the chronic type of alcoholic insanity which I cannot agree with Spitzka in regarding as (always) unsystematized, since many of them are supported with as much detail as those of any form of monomania." Since this was written, Fabre de Parrel<sup>1</sup> has described a case of chronic alcoholic insanity which displayed systematized delusions. My critic, as will appear further on, states<sup>2</sup> that monomania may arise from alcoholism, which certainly contradicts his statement that "the law may be laid down that as long as the purely alcoholic delusional lunatic exhibits skill in defending and consistency in acting with a morbid idea which a systematized delusion involves, his morbid idea is not yet a delusion, and as soon as it enters the sphere of a delusion it is not defended with skill nor does the patient act in logical accord with it." Of course, my critic can claim that monomania developing on an alcoholic basis is not alcoholic insanity, but this would be begging the question, since I used the term alcoholic from an ætiological, not a nosological standpoint. From this ætiological standpoint it is clear that, on his own evidence, his alleged law has no existence, and the evidence of Fabre de Parrel's case is in the same direction. It is urged against systematized alcoholic delusions that they originate in a 'mood,' and hence cannot be systematized, yet my critic states<sup>3</sup> that systematized religious delusions originate in an early developing religious tendency, and what is this at its outset, but a mood? It is urged also that the alcoholic delusion is at its outset merely a suspicion which the man tests, but according to my critic, "the component elements of the systematized delusions are the same which constitute normal conceptions." It is the synthesis, not the origin,

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<sup>1</sup> *Annales Médico-Psychologiques*, Série VI., Tome VIII.

<sup>2</sup> *Insanity; its Classification, Diagnosis, and Treatment*, p. 301.

<sup>3</sup> *Ibid.*, p. 27.

which tests a systematized delusion. If the systematized alcoholic delusionist does not always act in full accord with his delusions, it must be admitted that neither do other systematized delusionists, for, as my critic<sup>1</sup> says, collateral processes of reasoning come into action. It is also urged against the systematized alcoholic delusions that this originates in an illusion, but so do the hypochondriacal systematized delusions according to my critic.<sup>2</sup> The truth is, in fighting my statements about alcoholic delusions, my critic has been fighting a figment of his own creation, using a term in a nosological sense which had been used by me in an ætiological one only, for, as the following quotation<sup>3</sup> shows, my critic (as already stated) admitted that alcoholism sometimes produced monomania and hence could produce systematized delusions; "there are rare cases (of monomania) which have developed after typhus fever, after head injuries, in conjunction with alcoholism." This leads me naturally to the question of rheumatism. If monomania can originate after one acute disease (typhus fever), is there any reason why another should not produce it? From an *a priori* standpoint, the possibility of rheumatic systematized delusions must be admitted. My critic will, however, claim that the typhus fever produced a neurosis, and on this, some time after, the monomania developed. This I am perfectly willing to admit, for, as he states respecting my rheumatic cases, "the nearer the period of the histories given to the rheumatic phase, the less do we hear of the systematized delusions." The rheumatism produced a neurosis; on this neurosis developed a logical perversion resulting in systematized delusions. From my critic's standpoint, as taken in the

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<sup>1</sup> Insane Delusions, Journal of Nervous and Mental Diseases, January, 1881, p. 37.

<sup>2</sup> Ibid., p. 41.

<sup>3</sup> Op. cit., p. 301.

case of traumatic insanity,<sup>1</sup> this was to be expected, and in lieu of being a strong argument *against*, this late development is a strong argument *for* my position. From this it is evident that there is no essential absurdity in the view that rheumatism and alcohol can produce systematized delusions, and I am inclined to believe that if my critic will view this subject from an ætiological standpoint alone, he will admit this one criticism still demands consideration. The co-existence of systematized and parietic delusions is stated to be inherently improbable; this statement is modified and the value of it almost destroyed by a note to the effect that in case parietic dementia complicates systematized delusional insanity, parietic delusions may co-exist, but the systematized delusions become paler. A case of my critic's<sup>1</sup> which came under our joint observation, fully illustrates this co-existence and it was to be expected in rheumatic and allied cases, for, as I hope to show during the coming year, there exists a form of systematized delusional monomania secondary to alcoholism, traumatism, insolation and acute diseases, which has a special tendency to terminate in parietic dementia. At present I conclude that systematized delusions occur in alcoholic and rheumatic insanity. In my experience this has been the case.

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<sup>1</sup>Op. cit., p. 345.

## INSANITY IN CHILDREN.

BY

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FROM a judicial standpoint, insanity in children has not had much consideration in Anglo-Saxon countries; clinically, however, many cases are reported. Such cases as have come under my own observation, with others on record in the Asylum books noted by other members of the medical staff, preceding my connection therewith, are given at the end of this résumé of such cases as are accessible to me in the literature of insanity in general.

Mania in children has been reported as follows:

A case at the age of 6 years displayed marked excitement and emotional disturbance, with hallucinations.<sup>1</sup>

Two cases at the ages of 2 and 7 years; the former discovered the countenance of madness and tried to bite its own flesh.<sup>2</sup>

Cases with ages of 8, 9, and 14 years.<sup>3</sup>

Several at the ages of 8 to 14 years.<sup>4</sup>

Eight cases at the ages of 11 to 14 at the Bicêtre in the year 1839.<sup>5</sup>

Several cases of pyromaniacs aged from 9 to 16.<sup>6</sup>

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<sup>1</sup> Haslam, Observations on Madness.

<sup>2</sup> Rush, Medical Inquiries and Observations.

<sup>3</sup> Esquirol, *Maladies Mentales*.

<sup>4</sup> Calmeil, *De la folie considérée au point de vue pathologique*, etc., Tome I.

<sup>5</sup> Aubanel and Thoré, *Annales Medico-Psychologiques*, 1840.

<sup>6</sup> Marc, *De la folie considérée dans ses rapports avec questions medico-judic.*, Tome II.



Age 8 years.<sup>1</sup>

Age 7 years.<sup>2</sup>

Age 7 years.<sup>3</sup>

Age 10 years.<sup>4</sup>

Age 12 years.<sup>5</sup>

Several, aged 6, 7, and 10 years.<sup>6</sup>

Several, aged under 10 years.<sup>7</sup>

Several, aged under 10 years.<sup>8</sup>

Several, aged under 10 years.<sup>9</sup>

Several, aged under 10 years.<sup>10</sup>

Several, aged under 10 years.<sup>11</sup>

A child was brought into the Asylum at Wildham, with her mother, who was then insane. This child was then under nine months old, and from birth was subject to nervous attacks ending in an indescribable laugh, or an attack of mania during which she displayed great destructiveness. She died when eighteen months old.<sup>12</sup>

A boy of 10 years who displayed moral perversion and maniacal tendencies.<sup>13</sup>

Age 6 years, wild, destructive disposition, with attacks of furor.<sup>14</sup>

Age 9 years.<sup>15</sup>

Age 11 years.<sup>16</sup>

<sup>1</sup> Pignocio, Osserv. sulle Alienation Mentale.

<sup>2</sup> Stoltz, Med. Jahrb. d. Oesterr. Staats, March, 1844.

<sup>3</sup> Perfect, cited by Griesinger, Mental Pathology und Therapeutics.

<sup>4</sup> Spurzheim, Zeitschrift für Psychiatrie, 1844.

<sup>5</sup> Zeller, Zeitschrift für Psychiatrie, Band I.

<sup>6</sup> Brierre de Boismont, Annales Medico-Psychologiques, 1845.

<sup>7</sup> Jacobi, die Hauptformen der Seelenstörungen.

<sup>8</sup> West, Diseases of Children.

<sup>9</sup> Guislain, Leçons Orales sur les Phrenopathies.

<sup>10</sup> Burrows, Commentaries.

<sup>11</sup> Franck, cited by Griesinger, *op. cit.*

<sup>12</sup> Greding, cited in Obscure Diseases of the Brain and Mind.

<sup>13</sup> Forbes Winslow, *op. cit.*

<sup>14</sup> Romberg, Deutsche Klinik, 1857.

<sup>15</sup> Snell, Allg. Zeitschrift für Psychiatrie, Band XIII.

<sup>16</sup> Morel, Traité des Maladies Mentales.

Two cases, aged under 10 years.

Aged 5 years.<sup>1</sup>

Several, aged under 10 years.<sup>2</sup>

Two children, aged 4½ and 6 years, who were carefully brought up, but who were mischievous, malignant, and destructive.<sup>4</sup>

Age 6 years.<sup>5</sup>

A girl, aged 4 years, had first hallucinations of sight and hearing, became destructive, violent and homicidally inclined.<sup>6</sup>

A girl, 3 years old, had visual, auditory, and gustatory hallucinations, paroxysms of fury alternating with depression.<sup>7</sup>

Four children with transitory frenzy.<sup>8</sup>

A boy of 10 years, pyrophobia.<sup>9</sup>

Several, usually hallucinatory and confusional.<sup>11</sup>

Kiernan<sup>11</sup> cites the following cases. The first case was that of a girl, aged 6. Family history shows marked neuropathic taint; the paternal grandfather died of apoplexy; the father is liable to attacks of vertigo, in consequence of which he was forced to abandon his trade (mason), after having sustained serious injuries by falling from a ladder during an attack of this kind. His eldest daughter is a hystero-epileptic, and has, at irregular intervals, a hard, brassy cough of hysterical origin, the lungs and larynx being healthy. She has had stigmata make their appearance, from time to time, as a rule, during suppression of the

<sup>1</sup> Foville, Dictionnaire de Médecine, Tome I.

<sup>2</sup> Jordens, Hufeland's Journal, Band IV.

<sup>3</sup> Delasiauve, Annal. Medico-Psych., VII., 1855.

<sup>4</sup> Manley, Journal of Mental Science, p. 531, Jan., 1883.

<sup>5</sup> Hammond, Treatise on Insanity.

<sup>6</sup> Chatelain, Journal de Médecine, Tome X.

<sup>7</sup> Magnan, Mémoires de l'Académie de Médecine, LXXIV., 1860.

<sup>8</sup> Reich, Berliner Klinische Wochenschrift, October, 1881.

<sup>9</sup> W. P. King, Alienist and Neurologist, 1880.

<sup>10</sup> Kräpelin, Archiv für Psychiatrie, Band XI., XII., XIII.

<sup>11</sup> Lectures on Insanity.



menses. All the children, nine in number, have suffered from convulsions during the first dentition, of which two of them died. One child died from a convulsive attack brought on by overheating. Just previous to the menstrual period, three of the girls had somnambulistic attacks, which vanished on the appearance of the menstrual flow. The little girl first-mentioned, was attacked by scarlet fever, which went through its early stages in the usual way. About the fifth day after the appearance of the scarlatinal eruption, the temperature, which had risen to  $104^{\circ}$ , suddenly sank to  $98^{\circ}$ , and the child became extremely restless and violent. About two weeks prior to the attack of scarlet fever, while coming home from school, she had been much frightened by a Chinaman. She now complained that she saw this man's face at the window, and that his hands were stretched out to grasp her. This condition continued for two days, and then gave place to one in which the child was greatly agitated and very incoherent; she was at the same time much depressed. She remained in this condition a week and then fully recovered. While this child was ill, her sister, 9 years old, was taken sick with scarlet fever. About the seventh day of the disease, the temperature, which had ranged between  $102^{\circ}$  and  $106^{\circ}$ , fell to  $98\frac{1}{2}^{\circ}$ , and symptoms similar to those of the first case made their appearance, followed by marked hallucinations of hearing. She claimed to hear some one crying to her: "Help! help!" She had no other hallucinations. These persisted for a week and then disappeared to give place to the condition of depression, agitation, and incoherence present latterly in the first case. The patient remained about ten days in this condition and then recovered.

The next case occurred in another family. J. H., aged 8 years, belonged, like the cases last-cited, to a neuropathic family. The maternal ancestors, for three generations, died of apoplexy. The father was very intemperate. The

patient was one of twelve children, of whom three were still-born : one died a day after birth, and five are still living. Of the latter, one sister is a hystero-epileptic ; one brother is an epileptic. J. H. was attacked by scarlet fever, which went through its usual stages till about the fourth day of the disease, when the temperature, which had reached  $107^{\circ}$ , suddenly fell to  $98\frac{1}{2}^{\circ}$ . The patient at the same time became markedly stupid and did not respond readily to any stimulus from the outside world. This condition persisted for about twenty-four hours ; then the patient became agitated and restless, poked cotton in his ears and shut his eyes, complaining that he saw rats running all over the room, and heard them squeaking.

Another case occurred in a girl of 10 who had a neurotic ancestry and was attacked by scarlatina. The psychical phenomena were the same as those just described. He has also observed katatonia in a boy of 11.

Spitzka<sup>1</sup> agrees with Griesinger as to the features of the chronic types of insanity in childhood, and mentions the case of a 5-year-old child in whom psychical phenomena vicariated for malarial attacks. He also cites the case of a 9-year-old girl who became morally insane after an attack of scarlatina.

A girl, aged 8 years, noted by Hughes,<sup>2</sup> became morally insane after blood-poisoning.

Emminghaus<sup>3</sup> reports transitory frenzy in children.

Bucknill and Tuke report the case of a boy who was attacked by scarlet fever at the age of 5 ; from that time, there was a certain change of character. A want of self-reliance and inability to help himself in any difficulties, so that he continually wanted help in his employments. Great excitability was also manifested. He excelled in spelling

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<sup>1</sup> E. C. Spitzka, *Insanity, Its Classification, Diagnosis, and Treatment.*

<sup>2</sup> *Alienist and Neurologist*, 1882.

<sup>3</sup> *Neurologisches Centralblatt*, 1882.

at school, but in no other department. He was a great reader of ordinary tale books and popular scientific works. His memory was very tenacious of both the facts and the words. In his moral character, the change was extreme. He appeared to lose the distinction between truth and falsehood, he having been truthful and conscientious before, and while making a high profession of religion, he was deceiving himself and his friends also. He chose low society in preference to the refined associations by which he was surrounded at home. For some time after his regard for truth had disappeared, he distinguished between *meum* and *tuum*, but this distinction, after a while, was removed also, and he possessed himself of articles of trifling value, from a morbid desire to steal, and not from any use he could make of the articles. To sexual immorality he was not addicted.

Esquirol<sup>1</sup> had a case of melancholia in a child of eleven, and one morally insane at the same age. Aubanel,<sup>2</sup> at the Bicêtre, reports a youthful case of melancholia, Brierre de Boismont,<sup>3</sup> another, also a case of circular insanity in a child aged three and one-half years, whose father was a paralytic dement. Jacobi<sup>4</sup> observed several cases of melancholia in children. Hammond<sup>5</sup> gives two cases of epileptic insane at the age of seven. Berner<sup>6</sup> reports the case of a six-year-old child who was attacked by a melancholia; the patient desired solitude, was restless awake and in slumber, and had visual and auditory hallucinations with paroxysms of great depression. Boucheron<sup>7</sup> reports what from the description seems to be a case of katonnia in a girl of nine years. Möller<sup>8</sup> describes three cases of insanity, two of which were girls aged eight and thirteen and one a boy of thirteen and one-half, who was a case of

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<sup>1</sup> L. c.

<sup>2</sup> Norsk Magazin für Laegesvidenskaben, Band XII.

<sup>3</sup> Annales Medico-Psychologiques, 1874.

<sup>4</sup> Archiv für Psychiatrie, Band XIII.

circular insanity. The thirteen-year-old girl was a chronic case whose insanity originated in early childhood and was accompanied by hallucinations. The eight-year-old was insane after an attack of scarlatina, and presented an acute psychosis like that described by Kiernan.

A case of paretic dementia is reported in a boy of twelve years,<sup>1</sup> and one in a boy of sixteen.<sup>2</sup>

Readmissions excluded, there have been in Cook County Insane Asylum during the past twenty years, as far as the records show, twenty-one children aged seventeen years. Of fourteen males, the psychoses were stated as simple mania in three, melancholia in three, epileptic insanity in four, stuporous insanity in one, unrecorded in three. Of seven females, the form of insanity was simple mania in two, melancholia in two, epileptic insanity in one, unrecorded in two cases. These diagnoses, I think, are fairly reliable, though previous to the year 1878, the records were very carelessly kept. It is hardly likely that even the non-medical persons who have had the care of the insane here in olden times could have mistaken the epileptic cases, but as between mania and melancholia as much could not be said, for many general practitioners eminent in other than psychiatric fields have confused the two forms. Roughly estimated, there are about fifty cases of various forms of insanity in the asylum books who attained adult life before admission, but who were very probably insane before puberty. In about five hundred years hence, according to the progress being made in politico-medical matters in America, there will be some attempt made by those having charge of large institutions for the insane in this country to report to the scientific world cases of all kinds. Doubtless thousands of children have been admitted to these and other institutions

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<sup>1</sup> Trumbull, *Journal of Mental Science*, 1882-'83.

<sup>2</sup> Clouston, *Journal of Mental Science*, Vol. XXIII.



abroad of whom we have no medical histories recorded.

Optimistically, probably in a century from now, physicians will be selected and kept in place in public charitable institutions on their merits and not from partisan motives.

Legislators in the main are either ignorant that republican or democratic predilections do not make the medical man, or they allow their party feeling to override all considerations of mercy to their fellow-beings. In more than one case have I seen these matters brought home to them when one of their own family was committed to the care of the superintendent who had been fought or sustained for party reasons. *Then* the medical acquirements of the head of the asylum became a matter of great concern. Were there more concert of action between *medical* superintendents of asylums, much could be done toward clearing up foggy points in insanity and its treatment, but as a fountain cannot rise higher than its source, so long as the public is content with political care of the infirm, just so long will medicine grope along lamely, aided by the personal sacrifices of the student who is usually elbowed out of the way of aid from any quarter.

The following are cases of patients under the age of seventeen of most interest from the present standpoint, who died or were discharged previous to my installation here:

In all my published articles such cases as have not fallen under my observation are uniformly noted with Roman numerals, and for the sake of uniformity in my own cases the hospital Arabic character number is appended in every instance; this number, which is in red ink on all the books and papers, follows the case to the end. Students will be thus enabled to identify any case I may publish, no matter when or where.

I. Nicholas K., age sixteen, American; laborer, common school education, protestant, epileptic insanity,

admitted May 14th, 1874. Died June 1st, 1878. Had epilepsy since two years of age.

II. John K., age thirteen, German ; no occupation, education or religion, epileptic insanity, admitted July 25th, 1879, died demented December 29th, 1879.

III. Adolph T., age fifteen, German ; upholsterer's apprentice, common school education, Catholic, masturbates, melancholia ; admitted March 20th, 1879. Sent to a State hospital January 9th, 1880.

IV. John I., age fifteen, American ; no occupation, epileptic insanity. Attacks began ten days before admission. Admitted August 9th, 1872. Discharged April 7th, 1875.

V. Joseph S., age sixteen, Bohemian ; tailor, poor education, Catholic. Ill health and imprisonment alleged causes. Maniacal. Admitted March 2d, 1882. Discharged apparently recovered April 13th, 1882.

VI. Carrie A., age fourteen, American ; no occupation, fair education, Protestant, hysterical insanity. Admitted March 30th, 1882. Discharged apparently recovered June 20th, 1882.

VII. Mary Ann B., age fourteen, Irish ; school girl, poor education, Catholic, hereditarily predisposed. Imbecile. Admitted November 11th, 1875. Sent to a State hospital April 24th, 1878.

VIII. Meta B., age thirteen, German ; no occupation, no education, head injured, epileptic insanity. Admitted September 12th, 1876. Died April 11th, 1878, of terminal dementia.

IX. Mary D., age sixteen, Irish servant, poor education, Catholic, menstrual derangement alleged exciting cause ; simple mania. Admitted June 15th, 1882. Discharged July 14th, 1882, apparently recovered.

X. Amelia I., age fourteen, German ; no occupation or education ; Catholic, epileptic insanity ; five years insane

before admission. Admitted August 8th, 1878. Discharged April 10th, 1879, apparently improved.

Case No. 162.—John B., age fifteen, Swede ; no occupation or education. Imbecile ; physically in good health. Macrocephalic. Had an insane uncle. John is the eldest of five children. Parents sane, healthy, and temperate. He developed homicidal tendencies three weeks before admission, having stabbed a younger brother ; was stubborn and beyond control of mother ; father whipped him unmercifully until the mental defect was recognized. He was five successive years in the same class at school. Morally insane before admission, merely imbecile now. Admitted January 4th, 1883.

Case No. 255.—John B. O., age thirteen, English ; errand boy ; meagre education ; Protestant ; admitted July 13th, 1883 ; discharged August 13th, 1883 ; apparently sane during his residence in this asylum. Has appearance of slight mental hebetude, as though a possible epileptic. He said he had been frightened by other boys, and had some fits, and that while living subsequently with Judge P. had another fit. Nothing in committal papers giving a clue to why he should have been sent here. He has been met selling newspapers on the Chicago streets since his discharge by officers of the asylum.

Case No. 71.—Ada O., age sixteen, American ; servant ; Episcopalian ; hysterical insanity ; admitted September 20th, 1877 ; is usually in high glee, laughing and chattering sillily ; restraint necessary often to prevent her harming herself or running away ; seldom has quiet remissions, during which she talks a little.

Case No. 247.—Ferdinand P., aged six, American ; epileptic insanity ; very restless ; fights and cries when opposed or taken hold of ; dumb ; has to be kept in locked room ; habits filthy ; notices very little, but attention attracted by noises ; has impulses, and checks them, as evi-



denced by starts he makes forward, then a halt, and change of direction; looks up in air, as though he had hallucinations frequently; physical health good; mother appears indifferently balanced; she says he has had epilepsy since one year old; ergot and kali bromidum quieted him down to a dazed condition; youngest case on asylum records: admitted July 5th, 1883; discharged, slightly improved July 8th, 1883.

Case No. 288.—David J., age fourteen, Swede; epileptic insanity; sent to this asylum from State asylum, where he was admitted September 5th, 1881; is stupid; answers no, no, to all questions; spins around frequently on his heel as he walks; alleged cause, sunstroke.

Case No. 221.—William B. D., age twelve, American; education poor; Protestant parents; epileptic insanity; parents feeble, and lack force; sister has "spinal complaint"; epileptic eight years following a railroad accident, wherein he was injured (particulars not obtained); had scarlet fever when three years old; decidedly depraved; persistent and public masturbator; caught manipulating sick and helpless male patients; appears to be anæsthetic; delights in burning himself, and is covered with scars; June 25th, 1883, had a succession of severe convulsions all night and next day; *secale cornut. fl. ext.*, 3 ss. doses, repeated, controlled them (a Celtic attendant remarked with feeling that the "dochter who wad kape that gossoon alive committed murder"); taken home by parents June 27th, 1883, unimproved.

There are several cases in addition to the foregoing which I would like to give were their histories obtainable. Cassia L., Case No. 50, is a moral imbecile, said to have been rendered so by scarlatina; but as no one has been to see her in my time, I cannot add her to the list. Idiots do not fall within this purview, so they are excluded. Histories of the insane are exceedingly difficult to obtain, and

much logic has to be used in digesting the contradictory narratives afforded by different members of the same family. The husband and mother-in-law's antagonisms often loom up startlingly on my books.

As to the preponderance of a particular psychosis in early life, Griesinger<sup>1</sup> says that all forms of insanity may occur before puberty; that the various kinds of mental weakness from idiocy to imbecility stand first in order of frequency, and following these, maniacal conditions are next most common. These latter appear as moderate irritabilities, persistent or habitual; the child is passionately obstinate, quarrelsome, malignant, or even immorally inclined. Often this mental degradation is dubbed simple wickedness. It may occur as a simple logical perversion with aimless errabund tendencies, intellectual and emotional perversion with excitement. These children cannot keep still a moment; they talk incessantly and incoherently, and are very inattentive. Sometimes there are longer or shorter attacks of mania. In children of from three to four years, attacks of crying, of wild refractiveness, of striking, and desire to destroy morbidly occur. These may be alternated with epilepsy, chorea, stupor, ecstatic cataleptoid states simulating ordinary katatonia; the child may remain for hours or days as if quite absorbed, with open eyes, fixed countenance, and peculiar position, sometimes suddenly breaking out into loud cries. Melancholia is less frequent. Hypochondriacal conditions develop in children who have parents morbidly anxious about the health of their offspring. Demonomania sometimes occurs. Monomania is rare, necessarily as the *ego* is not awakened, and the mobility of the age prevents systematization of delusions.

Spitzka<sup>2</sup> justly considers monomania an approach, in

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<sup>1</sup> L. c.

<sup>2</sup> *Insanity*, p. 281.

some respects, to imbecility. The difference being in the acquired data of the adult monomaniac upon which to found his logical aberrations, which the child lacks. Hallucinations and fixed delusions are presumed to be much rarer in children than adults. When younger than ten years, I remember to have had deliria and visual hallucinations during ordinary fevers and in measles, ague, and yellow fever. The old-fashioned "tester" or canopy over my bed was expanded to inconceivable size, and covered with faces which broadened out, usually smilingly, to titanic sizes. My oldest boy, up to ten years, when feverish, was subject to night-terrors with hallucinations. He imagined he was going up in the air, and screamed to be held down. Since that age, these peculiarities have not manifested themselves in either case.

Blandford<sup>1</sup> says that juvenile insanity is marked by violence of temper, and act in irregular and paroxysmal attacks, often of a convulsive character, alternating with cataleptoid states. The mental symptoms are not delusions, but perverted feelings, hatred of relatives, cruelty, destructiveness, and hallucinations. He recognizes the infrequency of melancholia:

Luis<sup>2</sup> claims that the psychoses of childhood are varied, the child is morbidly irascible, malignant, destructive, and ceaselessly in motion; maniacal attacks occur; melancholia and hallucinations infrequent; sometimes sudden terror, and subsequent depression are noticed. If predisposed by heredity, subjective frights and unpleasant dreams at times seem to cause persistent anxieties and a species of hebetude. Impulsive tendencies are noted in some cases. Marcé,<sup>3</sup> after confirming Griesinger, states that these are evidences, not of a confirmed psycho-

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<sup>1</sup> *Insanity and its Treatment.*

<sup>2</sup> *Maladies Mentales.*

<sup>3</sup> *Maladies Mentales.*

sis, but of the result of illy developed brains, showing hereditary defect. Sheppard<sup>1</sup> claims that moral insanity is to be found dissociated from serious intellectual derangement in children more than in adults. A lad or young girl will suddenly become depraved and vicious, lose all sense of decency, openly and defiantly masturbate, destroy clothing, and commit acts at variance with the previous conduct.

Dickson<sup>2</sup> speaks of a class of insane children in whom subacute maniacal symptoms, garrulity or loquacity, or melancholic depression may be associated with homicidal or suicidal tendencies. They are often bright, but irritable and wayward.

Hecker<sup>3</sup> states that hereditary cases of insanity in children are marked by disagreeable, variable temper, irritability, lack of self-control, morbid egotism, and often one-sided talent, ideas of persecution at times, with impulsive and immoral tendencies.

Köhler mentions types very similar to those described by Griesinger, and opines that many children regarded as imbeciles are really cases of juvenile insanity.

Kerlin says that a class of insane children is now very distinctly recognized as an increasing product of the excesses and abnormalities of civilization. They may be found more commonly the subjects of neglect, born or drifting into almshouses, or quite frequently in refuges, where they are sentenced for incorrigible behavior or petty crime. They figure as "moral idiots" in some works on insanity; called so, because, in many, the perversion seems to be mainly in the display of criminal or vicious intent, without responsibility, or without will-power to control

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<sup>1</sup> Lectures on Insanity.

<sup>2</sup> Medicine in Relation to Mind.

<sup>3</sup> Klin. Vorträge.

<sup>4</sup> Irrenfreund, 1874.

<sup>5</sup> Medical and Surgical Reports, April, 1883.

the impulse. There is usually a history of family nervous disease or insanity, back of the child.

Hammond<sup>1</sup> states that the more usual variety of insanity in childhood is mania, but it is sometimes met with as an affection mainly of the emotions, or as characterized by blind and unreasoning impulses to acts of deceit or violence; fixed delusions are not a prominent feature, but there are perverted feelings, indecency, destructiveness, malignancy toward relations, and hallucinations. Kiernan<sup>2</sup> finds that the opinion of Griesinger respecting the impulsive and immoral tendencies of insanity of the hereditary variety in children are justified from his experience. He finds, however, that hallucinations are not infrequent in the acute types.

Scherpf<sup>3</sup> states that among the earliest manifestations of morbid psychical activity in the child are hallucinations, and these depend on already registered perceptions. Hallucinations of all the senses may be present, but those of sight are most frequent, next those of hearing, and exceptionally those of taste and smell, a little later delusions develop. Depression is the prevailing characteristic of these. Mania is the most frequent type of insanity, often of sudden inception, and furibund character. Melancholia often originates in hallucinations, and has a tendency toward hypochondriacal phases. Katatonia not infrequently occurs. He divides the psychoses of childhood manifesting themselves under three great groups, impulsive monomania, monomania and moral insanity, and periodical insanity. The latter, he holds, are more frequent than the acute psychoses, such as mania, melancholia, and katatonia. Systematized delusions he claims as rare among children. Cohn<sup>4</sup> finds that insanity in a child in whom the intellec-

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<sup>1</sup> Treatise on Insanity.      <sup>2</sup> L. c.

<sup>3</sup> *Jahrbücher für Kinderheilkunde*, Band xvi.

<sup>4</sup> *Archiv für Kinderheilkunde*, Band iv.



tual sphere is not developed shows itself chiefly in motor phenomena. When the intellectual part is somewhat developed, hallucinations and delusions occur.

His division of juvenile insanity is as follows:

A, functional; B, organic. The first are divisible into neuroses, developing into psychoses (chorea, epilepsy, and hysteria), and into idiopathic psychoses (hallucinatory, confusional insanity, hypochondriacal insanity, monomania, moral insanity, mania, and melancholia). The organic division comprises such kinds as manifest clear evidence of organic cerebral disease.

The diseases incident to childhood occurring in insane children tend to precipitate the patient into terminal dementia.

Etiologically, Le Grand du Saulle shows that insanity may be directly inherited. In most cases the tendency, not the psychosis, may be inherited. Lead poisoning, alcoholism, syphilis in either parent, or acute diseases in the mother during pregnancy, may produce insanity in the child. These neuropathic and psychopathic children are peculiar from childhood, as Meynert<sup>1</sup> says, there is something anomalous in them from infancy. Heredity is hence a great direct and also a predisposing cause. Education conducted with school honors as the object to be worked for, causes mental overstrain, and is a potent exciting cause. Traumatism may exert an influence before, during, or after birth. Scherpf has seen cases due to the use of forceps, and Guermónprez<sup>2</sup> has shown that cranial depressions during infancy produce important after-results.

The neuroses, hysteria, epilepsy, chorea, etc., are rather an expression of the unstable motor nervous condition than causative. Epilepsy may simply co-exist with insanity in children, and though it has not the same significance

<sup>1</sup> *Psychiatrisches Centralblatt*, 1877.

<sup>2</sup> *Archives Générales de Médecine*, 1882.

as in the adult, it does not seem to have been duly considered by authors. Certainly I cannot believe that the co-incidental or causative epilepsies reported by me are exceptional, and I incline to the belief that many of the manias recorded were larvated epilepsies (the *épilepsie larvée* of Morel<sup>1</sup>).

Acute febrile diseases may produce acute or constitutional psychoses. Systemic or local affections are relatively unimportant etiologically, though *entozoa* have caused decidedly acute cases of insanity. Onanism is to be considered more as the effect of a neuropathic condition than a cause of the same. The toxicants, stramonium, opium, chloral, hyoscyamus, santonin, and alcohol, produce acute curable disorders. Extremes of heat and cold, as in Reich's cases, may set up transitory frenzy well marked.

While Griesinger may be right in claiming that monomania as manifest in delusions is not frequent, this form is not shown in the logical perversion present in childish cases, which only lacks the data possessed by the adult monomaniac upon which to build his perverted reasoning. His statement concerning hallucinations is not in accord with the experience of the majority of authorities.

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<sup>1</sup> *Traité des Maladies Mentales*, 1860, p. 480.



## HYOSCYAMINE IN THE TREATMENT OF INSANITY.

BY

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A therapeutic fashion has, of late, arisen in the use of this drug in psychiatry. The effects of the drug from which this alkaloid has been obtained have long been known, but, under the therapeutic nihilistic tendencies exhibited in the English-speaking countries, respecting treatment of the insane, these have been ignored; and when the reaction came, the drug has been presented to the profession under the alluring garb of novelty. It is my purpose, in the present paper, to give a brief résumé of the literature of the subject, and report the results of recent personal experience.

Harley<sup>1</sup> says that: hyoscyamine, when given in such small doses as are insufficient to produce positive dryness of the mouth, rapidly subdues ordinary excitement of the pulse, and reduces it, within an hour or two, to its lowest rate; that is to say, to the condition in which it is usually found after a long period of complete rest of mind and body. For example, the pulse of a man ordinarily engaged shall be 80. After a small dose ( $\frac{1}{16}$  of a grain of hyoscyamine sulphate), it will gradually fall to 60 or 50; in another person, whose pulse may be 72, it will, at the end of the same time, be found steadily beating about 45. Schroff states

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<sup>1</sup> Old Vegetable Neurotics.

that  $\frac{1}{16}$  of a grain of hyoscyamine reduces the pulse from 79 to 18. In all his experiments with hyoscyamine, Harley has never observed the pulse to fall lower than 40.

After doses ( $\frac{1}{16}$  to  $\frac{1}{8}$  of a grain) sufficient to produce complete dryness of the tongue and the hard and soft palate, the pulse will generally experience an acceleration of ten to twenty beats, and be increased slightly in force and volume. This change in the pulse will be observed in from ten to twenty minutes after the subcutaneous injection of hyoscyamine; the acceleration does not usually continue for longer than twenty or thirty minutes, and rarely lasts for an hour. Then the pulse slowly declines, and gains a little in force and volume. It usually decreases about five beats for every interval of twenty or thirty minutes, until, at the end of an hour and a half, or two hours, it attains its minimum rate. After a small dose ( $\frac{1}{16}$  of a grain), the pulse will usually fall without any previous acceleration. Apart from these accelerating or depressing effects on the pulse, the following symptoms will be observed after moderate doses ( $\frac{1}{8}$  to  $\frac{1}{4}$  of a grain): In ten to twenty minutes from the time of injection, the tongue more or less completely dry, rough, and brown; the hard and soft palates dry and glazed; excessive giddiness and a weight across the forehead; somnolency; the cheeks occasionally a little flushed, and the membranes of the eye sometimes slightly injected. After continuing for about an hour, these symptoms pass off; and the tongue and hard and soft palates become covered over with a sticky, acid, offensive secretion, agreeing in all respects with that which follows the action of belladonna. The pupils slowly dilate during the latter part of the action of the medicine.

Dr. Bacon<sup>1</sup> finds that Merck's hyoscyaminé is most con-

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<sup>1</sup> *Lancet*, July 10th, 1880.

veniently administered dissolved in alcohol, one grain to the drachm. The solution mixes badly with water, a resin forming on the sides of the bottle. The preparation deteriorates by keeping; if it become greenish in color, it is a sign that its strength is lessened, and that its action may not be relied on. It is called by the manufacturer the "extractive amorphous alkaloid" of hyoscyamus, and is very costly. This preparation he found much more potent, certain, and reliable than those of ordinary henbane. It is a powerful sedative and hypnotic, and it is the only one in his experience whose action may be certainly relied on. He has never given more than a grain and a quarter. His usual prescription was three-quarters or one-half of a grain. Three-quarters of a grain given to a maniacal patient in a state of excitement will reduce him in half an hour to absolute helplessness. He then will be probably asleep or comatose. The lips become red, the face dusky, and saliva flows from the mouth. The pulse is quickened. There is dilatation of the pupil, lasting twenty-four hours. The other symptoms pass off in about twelve hours. Vomiting occurred in two or three of his cases. The drug is especially valuable in maniacal excitement. In some cases, the beneficial results flowing indirectly from its use had been so great that he was able, after a time, to dispense with the drug. Two cases had occurred in his practice which show where caution is necessary. In one (a private patient), half the dose prescribed put the patient into a state of excitement and delirium. In the other, an accident, fortunately not fatal, followed the drug's administration. The patient had become profoundly insensible, and had vomited, and part of the vomit (consisting mostly of partly-digested bread) got into the air-passages, giving rise to alarming symptoms.

Mendel<sup>1</sup> has given hypodermically very minute doses,

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<sup>1</sup> *Berliner Klinische Wochenschrift*, May 31st, 1880.

twice or thrice daily. The somatic effects of the drug manifested themselves promptly in dilatation of the pupil and acceleration of the pulse, as well as in increased blood pressure. The psychical effects (observations as yet limited in number) indicated great possible results. The dose must be gradually increased, as the patient very quickly becomes accustomed to the drug. His conclusion was that although its results are transitory, the agent will be found exceedingly serviceable as a tranquillizer of insane persons, even after other more popular drugs have failed. He has never noticed vomiting or nausea as a result of its use.

Prideaux<sup>1</sup> recommends  $\frac{1}{16}$  gr. thrice daily, and says that, "in senile excitement, hyoscyamine exercises a marked influence, subduing the excitement very quickly; but, as the subjects of this disease are nearly always very infirm and feeble, and their arteries almost always in a condition of atheroma and degeneration, it is not always admissible, as any drug tending to produce cerebral hyperæmia should be given with the greatest caution. In melancholia, it cannot be said to be of service. In most cases of mania, or where there exists great excitement of an aggressive and destructive character, or rapidity of movement and speech, the use of the drug is the most effectual and rapid means of producing 'chemical restraint.' In acute mania, it will produce sleep and quietude when all other drugs have failed, and is one of the most rapid and reliable of narcotics. In the treatment of the epileptic status in epileptic mania, it diminishes the number, frequency, and severity of the attacks, especially if its administration be extended over some time. In delusional insanity, especially with delusions of suspicion and other forms where the delusions are varying and changeable, it has a decided action. in

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<sup>1</sup> *Lancet*, November, 1879.

producing such an altered condition of the cerebral status that a condition which has been termed 'physiological mania' results, and this so eclipses the former delusions and hallucinations that they are forgotten, and the mind becomes clear, while, if the subjection to the influence of the drug be continued, they may disappear."

Dr. L. C. Gray<sup>1</sup> says that he prefers Merck's hyoscyamine because it is most efficacious and least unpleasant in its effects. One grain dissolved in 50 minims of alcohol, one drop containing therefore gr.  $\frac{1}{10}$ . This dose should be given either by the mouth or hypodermically, every three or four hours, until the patient becomes calm. The dose must be increased from time to time, to keep the patient quiet. No danger need be anticipated, unless the patient be very much debilitated. He has given the drug to the insane continuously and in increasing doses for over thirty days, without the supervention of any constant cardiac or pulmonary depression of heart. Quinine, given in full doses with hyoscyamine, increases the latter's calmative effect and removes or decreases the listlessness and languor induced by hyoscyamine. Hyoscyamine (feliculously termed a "chemical restraint") is of particular value in mental excitement, but hyoscyamine cannot be relied upon to produce sleep. This was his conscientious opinion, after a careful analysis of his cases. He once prepared a pill containing one-tenth of a grain of hyoscyamine. The effect was to produce great excitement. It was almost impossible to dispossess the patient of the idea that he was going to die. An emetic was given, but it was impossible to get that patient to sleep for two nights after. The case is an excellent illustration of the worthlessness, in a large proportion of cases, of hyoscyamine as a hypnotic.

Dr. H. H. Hutchinson,<sup>2</sup> of Pittsburgh, took one-fourth

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<sup>1</sup> Proceedings of the Kings County Medical Society, 1880.

<sup>2</sup> Alienist and Neurologist, 1881.



of a grain of the drug, resulting in dryness of the mouth, intensely congested face and neck, violent throbbings of the carotid, acceleration of pulse and respiration, numbness, and marked inco-ordination. Had any one noticed him at this time, he would have had some difficulty in establishing the fact that he was not deeply intoxicated. Finding that exercise would not remove the poisonous effects of the drug, he, with much exertion, ascended the stairs to his room for the purpose of retiring to bed. His mental faculties up to this point were intact, and he fully realized his unpleasant position, but had no fear of any fatal results. Indeed, he was entirely oblivious to everything past, present, or future, and cared little for anything except sleep. So imperative and overwhelming was this demand, and the general helplessness of his limbs so rapidly increased, that he was only able to throw himself upon the bed without undressing, and was soon in a deep slumber or coma, which lasted eleven hours. During this period he has no recollection of anything. He was not disturbed by any delusion or dream, or conscious of the presence of any one or of his own existence. Medical friends who were present with him during those eleven hours, alarmed at the profound stupor in which they found him, and not knowing he had been experimenting with hyoscyamine, resorted to every expedient to bring him out of what they supposed an apoplectic coma. Resort was had to sinapisms, dry cupping, application of cold to the head, flagellation by wet towels, etc.; but all efforts were unavailing to awaken him, or to produce any evidence of consciousness. During this prolonged sleep there was entire relaxation of all the voluntary muscles, except occasionally some spasmodic movements of the arms and legs; the pulse ranging during the first few hours at 138, full and hard; respirations numbered thirty-four to forty, and the temperature 106° F. As the narcotic

effects of the alkaloid passed away, the pulse rapidly fell to 106, temperature declined to 90°, and the respirations were reduced in frequency; but consciousness did not return for several hours after this. When he regained consciousness he had great difficulty in collecting his thoughts or concentrating his mind on any particular subject. There were no hallucinations, delusions or illusions but for twenty-four hours or more, every object in which he looked was tinged with yellow.

Dr. C. F. Clark,<sup>1</sup> finding that the dose of hyoscyamine recommended varied from gr. i.<sup>2</sup> to gr.  $\frac{1}{8}$ ,<sup>3</sup> he concluded, with the view of making a full impression, to give gr.  $\frac{1}{4}$ . It was given, and a decidedly "full impression" was obtained. A few hours after its administration the patient, a woman of 45-50 years of age, was found attempting to stand on her head, and otherwise performing in a manner that would have done credit to an acrobat. Her pupils were widely dilated and her pulse extremely rapid. The delirium was very high, and one of the most marked features of the case was the venous turgescence of the dorsal surfaces of the hands. Under the use of repeated doses of acetum opii, the delirium subsided, and though the pupils remained dilated for a day or two, no bad results were observed, excepting such increased nervousness as could be attributed to the fright. He decided to take the same dose, announced his intention to one of the apothecaries, and swallowed the pill. After taking it, he assisted at an autopsy. In the course of an hour, and while stitching up the body, he noticed his sight was slightly affected, the power of accommodation beginning to fail, but succeeded in completing the work. In pouring out the disinfectants,

<sup>1</sup>Therapeutic Gazette, December 15th, 1882.

<sup>2</sup>Mann's Manual of Prescription Writing.

<sup>3</sup>United States Dispensatory, 1830. It contains a note: "But in cases of great functional excitement or disorder, from a quarter of a grain to a grain (grms. .016-0.06) may be given by the mouth."



the apothecary noticed his irregular movements, and he experienced the psychical effects of the drug. A slight tendency to hilarity and a degree of forgetfulness, but, with the exception of the disturbance of vision on attempting to read, no unpleasant symptom characterized this stage. He was sufficiently rational to remember the antidote eserine, and the dose gr.  $\frac{1}{30}$ ; but, knowing his condition, he wished to make sure by referring to a standard dose book. This, however, he found himself wholly unable to do. The letters ran together; he half forgot the object of his search, found himself vaguely turning the leaves, and finally was obliged to intrust the matter to the apothecary. After taking the eserine he tried to write in his note book; he succeeded in writing a few lines, but soon realized that this was entirely unpracticable, for he found himself repeating the same sentence.

He walked out into the office, sat down in a chair, leaned his head on the table and became unconscious. How long he remained unconscious he does not know, but the nurse who had seen him enter the room between 4 and 5 P.M., under the influence of the drug, missed him for some time, and fearing all was not right, came into the room to find him first wandering about, then sitting in a chair chattering and mumbling in an insane, incoherent, but perfectly good-natured and harmless way. He was given at this stage a hypodermic injection of morphine, gr.  $\frac{1}{4}$ .

He has a vague recollection of rushing about the room carefully percussing the plastered walls and listening for physical signs, and searching for something he never could find, and causing no little amusement to friends by his vain efforts to seize small spots and cracks on the wall, which appeared to be bugs, all crawling downward in rows, but never getting any nearer the floor. The folly and absurdity of his movements, actuated by designs which were forgotten before they were executed, the un-

utterable silliness with which a fairly conceived sentence would terminate, from the increasing rapidity of its utterance and the crazy aptitude of some of the jokes and puns of which he was unconsciously guilty, made the occasion to him as well as to his audience one of great hilarity. Almost complete loss of expulsive power in the bladder characterized this stage of the action of the drug.

He did not suffer from dryness of the throat nor any other symptom unpleasant, though to his friends his extreme activity, which for a time had been a source of amusement, became after hours of watching anything but amusing. Indeed, after being roused from the state of lethargy induced by a second injection of morphia, so great was the activity that it was thought best to again repeat the injection of morph. sulph. gr.  $\frac{1}{2}$ . At this time his struggles, when an attempt was made to hold him in bed, became very violent, and he had a distinct recollection of the sense of indignity from which he suffered at being held, and of striking out at the face of his best friends.

This did not last long, however, for soon the morphia began to have its effect and he slept quietly till morning. When he awoke he felt no bad effects whatever except the slight inconvenience of the paralysis of accommodation which persisted for two or three days. On motion, nausea and vomiting ensued. Although within eight hours he had taken  $1\frac{1}{4}$  grains of morphia he noticed no constipating effects, nor, on the other hand, was there any laxative effect produced by the hyoscyamine.

Dr. T. Browne<sup>1</sup> claims that: First, his observations show the uncertainty of the action of hyoscyamine when given by the mouth, and the danger of large doses; second, they also show the marked superiority of the hypodermic method, and the confidence with which, in some

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<sup>1</sup> British Medical Journal, November 25th, 1882.

cases, its effects could be calculated on, and the dose increased or diminished in accordance with the violence of the patient; third, hyoscyamine is a drug which is often capable of controlling the violence of a furious maniac, and, it may be, checking the torrent of rushing ideas on which he is borne along, soothing without putting him to sleep, in these respects differing from morphia or chloral. In noisy and destructive progressive paretics, the quiet air of comfort and repose following a moderate dose was such a contrast with the previous condition as to strongly impress every one with the feeling that, in hyoscyamine, another valuable aid had been secured in the treatment of such cases; fourth, no curative action can be claimed for the drug. Even in acute mania it did nothing more than moderate or check, for a time, the violence of action, and, perhaps, render less vivid and overwhelming the terrifying whirlwind of delusions of the frantic patient.

Reinhardt<sup>1</sup> concludes: first, that hyoscyamine has a quieting influence on many cases of mania, and shortens the duration of the attack. It acts most favorably in states of excitement coincident with the menstrual period: Second, it sometimes exerts a marked influence on epilepsy. Third: one of its chief indications is found in a contracted tense pulse. Fourth: it is contraindicated in arterial, pulmonary, renal, and cardiac disease. The chief danger from its use is cardiac paralysis. Fifth: on the whole hyoscyamine is of but moderate value in psychiatric therapeutics.

Dr. J. P. Gray<sup>2</sup> believes that when hyoscyamine after a few doses does not produce a quieting effect it should be discontinued. He believes it of value in melancholia, using this term to designate all conditions of depression. He states that "in cases of mania and melancholia, where the

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<sup>1</sup> Archiv für Psychiatrie, Band xi.

<sup>2</sup> American Journal of Insanity, April, 1880.

delusions have been of such a character as to influence the patient determinately to resist food, its administration has almost invariably controlled the patient."

Seguin<sup>1</sup> claims that hyoscyamine is indicated in mania, restlessness, dementia agitata, epileptic mania, insomnia in general, epileptic status, hystero-epilepsy; in mania it is a more certain hypnotic than chloral. It has *cured persecutory and suspicious delusional* insanity. The last is certainly too strongly put.

Savage<sup>2</sup> has in the main had similar experience to that of Bacon.

Dr. Hughes<sup>3</sup> says: It is a remedy especially for hypodermic use, and in its use we should bear constantly in mind its capability to excite or depress the psychical and psycho-motor centres of the cerebrum, according to the dose in which we employ it, and, in some instances, according to the idiosyncrasies and diathesis of the patient, and we have also to bear in mind that when its employment is especially suggested we have mainly to do with neuro-pathic organisms, or the insane temperament, or diathesis, as it is termed, for it is in these cases where it is capable of being used and does most frequently have the best effect."

Dr. H. Gibbons, Sr.,<sup>4</sup> reports a case of poisoning in a seventy-five-year-old woman suffering from paralysis agitans by a one-eighth grain dose of the drug. The symptoms presented were extreme coldness, loss of muscular power, and loss of articulating power. Everything appeared red to her. Hughes had already suggested caution in the use of hyoscyamine in the aged.<sup>5</sup>

<sup>1</sup> Alienist and Neurologist, January, 1882.

<sup>2</sup> Pacific Medical and Surgical Journal, December.

<sup>3</sup> Archives of Medicine, April and June, 1881.

<sup>4</sup> Archiv für Psychiatrie, Band xi.

<sup>5</sup> Journ. of Mental Science, April, 1881.

Dr. J. C. Shaw<sup>1</sup> has had very similar results to those of Seguin. His researches and those of Gray and Kempster bear a striking resemblance to those of Prideaux, so striking that it is by no means improbable that the results obtained contained too much of the personal equation to be taken without careful analysis. Lawson's<sup>2</sup> results resemble in a general way those of Harley, as also do those of Oulmont<sup>3</sup> and Laurent,<sup>4</sup> and the same may be said of the results of Gnauck.<sup>5</sup> In one case reported by Shaw, a lypemaniac became agitated, said he was going to die, complained of dizziness, and evidently had a feeling of oppression; his pupils were dilated and mouth very dry.

Seppili and Riva<sup>6</sup> admit that hyoscyamine has hypnotic properties, but it also has very serious disadvantages. It is of most value in recurrent mania, and can be used as a substitute for chloral. It sometimes diminishes epileptic attacks and retards their apparition.

Kretz<sup>7</sup> found hyoscyamine of value in maniacal conditions, but believes that vivid hallucinations contraindicate it.

Spitzka<sup>8</sup> believes that hyoscyamine is a dangerous and uncertain drug, and that the tincture is preferable to the alkaloid. Schüle<sup>9</sup> has expressed very similar opinions.

Hammond<sup>10</sup> has found hyoscyamine of great value as an adjunct in the treatment of conditions of mental excitement, especially when conjoined with great mental activity.

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<sup>1</sup> Journal of Nervous and Mental Diseases, April, 1882.

<sup>2</sup> West Riding Asylum Reports, 1876.

<sup>3</sup> Bulletin Générale de Thérapeutique, t. lxxxix.

<sup>4</sup> De l'hyoscyamine et de la daturine.

<sup>5</sup> Du Bois Reymond's Archiv, 1881.

<sup>6</sup> Revista Sperimentale, 1881.

<sup>7</sup> Allgemeine Zeitschrift für Psychiatrie, Band xxxviii.

<sup>8</sup> "Insanity: its classification, diagnosis and treatment."

<sup>9</sup> Allgemeine Zeitschrift, Band xxxix.

<sup>10</sup> Treatise on Insanity.



Kiernan<sup>1</sup> is of much the same opinion as Spitzka in regard to the unreliability of hyoscyamine and its dangers. He regards the alleged action on delusions of persecution as an absurdity, since melancholia is a condition in which hyoscyamine is pre-eminently contraindicated, and to attempt to affect the depressing delusions of other psychoses by hyoscyamine would be as absurd a procedure as to claim that the 'terror' of the first French revolution could be removed by the same drug. He is of the opinion that the fluid extract of hyoscyamus in fifteen-minim doses is preferable to the alkaloid or extract.

From the data given it is clear that the use of hyoscyamine is not unattended by danger. It is obvious also that there is very great uncertainty about the preparations. There is a hyoscyamin as well as hyoscyamine, and there appears to be an inextricable confusion between the two, as Dr. Clark says: "Hyoscyamine, of which the dose is  $\frac{1}{16}$  of a grain, is the true alkaloid of hyoscyamus, being analogous to atropia or atropine, which is the alkaloid of belladonna. But, for years there has been in the market a preparation of variable strength, stronger than the extract, but much weaker than the true alkaloid; and this preparation is called hyoscyamin. Of this preparation one-eighth to one grain may be given. The only distinction between these two names, when properly written, is in the final letter 'e,' being added to the name of the true alkaloid; but, what shall we say when, on turning to the United States Dispensatory, for 1878, we find the terms used synonymously? The cautious physician who is acquainted with these facts will beware how he prescribes hyoscyamin, unless he has thorough confidence in his druggist."

I have recently given the drug in three cases of puerpe-

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<sup>1</sup> Lectures on Insanity.

ral insanity, with the effect of promptly modifying the psychical symptoms to such an extent as to make possible ordinary treatment. The preparation used was Merck's crystalline alkaloid and the dose found effective has been much smaller than that usually recommended; one-thirtieth of a grain, which has invariably produced mydriasis and mouth and throat dryness.

The first case was as follows: Mrs. B., suffering from puerperal insanity, persistently refusing food and medicine, and at times was quite violent in manner, was given hyoscyamine which produced a marked change in her mental condition. The violence gave place to calmness and a desire for food was manifested. The drug did not produce sleep, but by its quieting effects gave an opportunity to administer an enema of  $\mathfrak{D}$ ij. chloral hydrate which was promptly followed by refreshing slumber and marked mental improvement. Twenty-four hours thereafter, another paroxysm of violence was threatened which was arrested by the procedure just narrated. Hyoscyamine was continued for several days in sufficient doses to produce mild mydriasis, chloral enemata being given at bed-time. Milk and easily assimilable food was largely used. The patient made a good recovery.

Case II.—Mrs. N., puerperal insanity complicated by metro-peritonitis, had for twenty-four hours refused food and medicine and was found to be wildly excited. She was ordered hyoscyamine in one-thirtieth of a grain doses every four hours. Shortly after the third dose was given, she was found perfectly passive in mind and body. Opium was given in enemata to relieve the peritonitis. The patient recovered from insanity, but died of peritonitis.

Case III.—A case of puerperal insanity refused food and medicine. Hyoscyamine in the same doses was given, resulting in muscular relaxation and mental pacification one hour after administration, and profound sleep followed.

The patient was kept under the drug for two weeks, the mental excitement gradually subsided, and recovery resulted.

Taking all the facts into consideration, it is not too much strain on probability to claim that, while it has been abused, the drug is not without its place in the armamentarium of the alienist.

## A CONTRIBUTION TO THE MORBID ANATOMY AND SYMPTOMATOLOGY OF PONS LESIONS.

BY

E. C. SPITZKA, M.D.

In the last number of this JOURNAL,<sup>1</sup> the writer related, very briefly, the morbid appearances found in the brain axis of a patient who had during his life presented certain peculiar disturbances of motility. Since then, the completion of the microscopic examination has confirmed the main facts previously recorded, and revealed others which appear to the writer to have some bearing, not alone on the question of peduncular anatomy, but also on the physiology of motor co-ordination. The discovery of a portion of the clinical notes, which had not been found when the preliminary communication was published, also enables the writer to furnish a more accurate account of the life history.

It is but proper to state, before proceeding to the fuller discussion of this interesting case, that the preliminary notice of it contained a misinterpretation of the report made by Meyer of a somewhat similar one.<sup>2</sup> The distribution of the lesion, as given by that writer, was inaccurately cited, partly because of misapprehension, and partly

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<sup>1</sup> Provisional Communication Regarding a Case of Pons Hemorrhage with Descending Degeneration of the Stratum Intermedium. By E. C. Spitzka, AMERICAN JOURNAL OF NEUROLOGY AND PSYCHIATRY, August, 1883, p. 500.

<sup>2</sup> Ueber einen Fall von Pons-Hämorrhagie mit secundären Degenerationen der Schleife. Von Dr. Paul Meyer, Privatdozent. Archiv f. Psych. u. Nervenkrankheiten, xiii., 1, p. 63 (with one plate).

because the text is not sufficiently explicit on certain points, to be hereinafter pointed out.

The report of the writer's case involves a clinical history extending over six years, which began with an apoplectic attack, diagnosed and confirmed to be due to a hemorrhagic lesion of the left half of the pons, at the junction of the pedal and tegmental divisions of that segment of the brain axis. It also includes the description of a secondary degeneration of a nerve tract, affected by said hemorrhage. The existence of this degeneration had not been suspected during life. It proved to be one of the purest and most conclusive instances of tract disease reported in the pathological records, and was found to be devoid of the complications which impair the physiological value of Meyer and Homén's cases. Inasmuch as important confirmatory and supplementary evidence is to be derived from a comparative study of the three cases, which, as far as the writer is aware, are the only ones in which a secondary degeneration of the stratum intermedium has been discovered, the two recorded by the observers mentioned, will be briefly detailed in the sequel.

#### I.—CLINICAL HISTORY.

Jean Baptiste B——r, aged 58 years, trussmaker, single, consulted the writer on the 6th of August, 1879, and related the following history: About two years before, while on the water-closet moderately straining at stool, he suddenly became faint and dizzy; his thoughts were confused for the moment, but he recovered in what appeared to him to be a few seconds. He then noticed, on attempting to dress himself, that his right arm was numb, and on rising that his right leg felt as if asleep; there was a feeling throughout the right side of his body as if a sort of musical sensation pervaded it; he spoke of it as a "*singendes Gefühl*," and, as far as the writer could judge, intended by this term to describe the peculiar vibration experienced when the leg of a healthy person, after becoming asleep, is stamped violently on the ground. His dressing occupied some time, as he could not find the buttons with his right hand, and afterwards he walked to his



office on the next floor without much difficulty. At no time thereafter, up to the period of the consultation, had he observed any actual weakness of any of his extremities. The "singing sensation" disappeared, after having continued some months, and was accompanied by the symptom which persisted up to the date of the patient's death, and which he happily described as a stupid feeling (*dummes Gefühl*), combined with the numb sensation (*taubes Gefühl*). He frequently spoke of his right hand and arm as being devoid of intelligence. For some time after the attack, his vision was blurred, but there seems to have been no marked diplopia. The numbness was limited to the right side. A few days ago, he awoke from his sleep feeling an aggravation of his symptoms, and noted a return of the "singing feeling" on grasping a piece of paper with his right hand. His tongue, which had been a little thick, failed him altogether, but he regained its use in a few hours. He has been unable to carry on the skilled work of his occupation, and expresses himself surprised that a man of his muscular power should be absolutely unable to use a needle satisfactorily, though he had been a skilled workman before. His stereotype phrase at his numerous visits was "such a man as I, who is as strong as an ox, who could fell an ox with this right hand, yet is not able to use a needle with it."

*Status præsens*:<sup>1</sup> Patient, a powerful, well-nourished man, all the viscera normal, and the ordinary somatic functions undisturbed. The patient exhibits a clumsiness in gait, which is neither truly ataxic nor paretic in character, but seems to be attributable to a vertiginous sensation. He throws the right foot somewhat in walking, and rubs his right hand over the left or over his clothing, as if to reanimate it. Besides the stupid feeling, he complains of a sensation as if "sinews" or "wires" ran through all the parts on the right side of the median line, and were too short, giving him the impression as if his limbs were drawn together. There is neither contracture nor paralysis; on the contrary, the muscular movements are more powerfully executed on the right than on the left side, and are unhindered and free in every direction, while the muscles are well developed. There is no change in the sensations above alluded to after making movements of any kind or intensity. It is observed that all the movements are of a more jerky character on the right than on the left

<sup>1</sup> From notes taken on the patient's third and fourth visits; the notes made on the occasion of the first consultation were hurried and imperfect, and hence the incompleteness of the first report, based in part upon them.

side. The patient feels insecure when walking in the dark, feeling as if he might fall, but can stand with his feet together and without swaying as well as most persons at his age. It is observed that he rests his weight on his left foot when he is submitted to this test, and states that if his left side were as bad as his right, he would fear to try the experiment; as it is, there is a subjective feeling of insecurity.

The patellar tendon reflex is greatly exaggerated on the right side, and very active, though not outside of the normal limits on the left side. The abdominal reflexes are normal, the cremasteric cannot be elicited on either side, tickling of the right sole fails to produce reaction; on the left a moderate movement results. Other reflexes normal.

On ordering the patient to close his eyes, and then to place his right index finger on the tip of his nose, he does so, oscillating very uncertainly with his hand, and moving his head towards the finger. Occasionally he strikes the side of his face and his forehead, but repeats the attempt successfully. He is unable to write his name in the dark, but makes meaningless scratches and smears the paper. The handwriting when the eyes are employed is irregular and scrawl-like as compared with his handwriting before the apoplectic attack; it is, however, still legible, and the characters, aside from an irregularity in size and an ataxic tremor, are bold and distinct. On asking the patient to bear up against the writer's resistance (hand to hand, hand to forearm, and hand to leg and thigh), he uses either too little or too much force (usually the latter) when the experiment is tried on the right side, and shows the normal balancing of his forces on the left. At the same time his movements have the jerky, spasmodic character on the right side previously referred to. There is nothing of the kind observable on the left side, and neither the tests made for ascertaining his sensibility, nor those made to elicit his co-ordinatory functions, support the patient's statement that his disorder has latterly involved the *left* foot.<sup>1</sup> There are no trophic disturbances of any kind.<sup>2</sup>

The movements of the head as a whole are not disturbed; it is thrown forward, from the patient's habit of fixing his eyes on the ground. The tongue deviates slightly to the right, and both the upper and lower lips tremble somewhat on being opened and with

<sup>1</sup> Subsequently to his first visits, the patient's subjective complaints are altogether limited to the right side and the head, except where special mention is made of new symptoms in the sequel of this history.

<sup>2</sup> And none appear until the close of the patient's life.

the pronunciation of labial consonants. The right angle of the mouth is perhaps less actively innervated than the right. There is a slight mechanical defect in articulation, which increases after the patient speaks a while; this, it was subsequently learned from his nephew, had been observed from the day of the apoplectiform attack, and much variation was noted in the symptom both by the relatives and the writer, it becoming more aggravated when the patient was tired, overheated, or experienced any discomfort and becoming almost unnoticeable when he was in good spirits. The electrical reactions are normal throughout. Whistling was possible, but imperfectly performed.

The tactile sensibility is impaired on the surfaces of both right extremities, being most diminished on the tips of the fingers and toes, and somewhat on the palmar and plantar surfaces, and the dorsum of the forearm. There is much more uncertainty as to the determination of the distances of the points of a blunt æsthesiometer than of a sharp one. The points of the latter are recognized on the tips of the digits, at distances half as great again as those necessary for separate appreciation on the left side. Sensation of pain is quite acute, sensation of temperature quite impaired. The patient is unable to judge of differences in weight five times as great as those recognized on the left side, *and cannot judge of the nature of surfaces* with his right hand, when his eyes are closed. He is not able to determine the direction<sup>1</sup> at which a long cold object (glass rod) is placed, either on the sole or dorsum of his foot, his leg, and thigh, or anywhere below the shoulder. On the ventral and dorsal surface of the trunk, the appreciation of the points of the æsthesiometer appears to be equally good on both sides; there is relative slight uncertainty as to the direction in which the glass rod is placed on the anterior lateral and posterior faces of the right half of the thorax; but the field of uncertainty fails to reach the median line by about three inches. When told to put out his left leg or arm horizontally, while his eyes are shut, he does so repeatedly and properly; with his right leg and arm, he is unable to reach the horizontal position, in two out of three attempts, and unable to retain it, but sways above or below the line, with considerable oscillations. He can retain it when his eyes are opened. He has a sense of gross muscular power in his right arm, but is utterly unable to regulate it, or the movements of the right leg, when a smaller instrument, such as a needle, is placed

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<sup>1</sup> One of the simplest and most reliable tests for determining the higher kind of the space sense perceptions.

in his hand, and even when his eyes are closely directed to his movements, they have the impulsive, jerky character repeatedly alluded to.

It is noteworthy that the patient states that, whenever a high wind is blowing, the stupid feeling, the difficulty in walking, and the vertiginous sensation increase. He believes that, with an intensification of these symptoms, his mental energy suffers as well. There is no noticeable mental impairment. The patient does not complain of any other head symptom except a dizzy sensation alluded to, and that his right nostril frequently seems to him to require blowing, from a sense of obstruction, when, in reality, he can find no warrant for it. Sensation is normal on the forehead, about the eyes, and on the neck; it is impaired slightly on the right side of the lips and cheeks.

The patient called at irregular intervals, presenting, in the main, the same symptoms. He was also frequently seen by the writer on the street, exhibiting his characteristic gait. Most of his visits were the result of episodic aggravation of the subjective sensations related. The writer's diagnosis had been communicated to him, as well as a qualified unfavorable prognosis. On July 18th, 1881, he returned, after an absence of nearly a year, with a faint hope that, as no paralysis had ensued, some new discovery had been meanwhile made which would touch the spot of disease which the writer had explained to him. He had gone the "rounds," consulting all varieties of electricians, regular, irregular, and sectarian. He complained of an extension of his subjective sensations to the *left foot*; no objective anomaly was, however, found. No treatment except of a dietetic character had been administered by the writer, and the patient had finally become resigned to his fate, and concluded not to try any new therapeutical devices for awakening false hopes, and depleting the purse.

September 24th, 1881. Has suffered from a diarrhoeal complaint, with bowel tenesmus, for three days past; this morning, had a normal passage. Complaints of alternate swelling of the eyelids. The patient requires firm pressure with the points of a blunt æsthesiometer to appreciate them at all, and is very uncertain about their locality and number. A sharp æsthesiometer is appreciated as before. A repetition of all tests was made. The ataxia of movement is increased in the arm; the gait is the same. No muscular weakness in the extremities; electrical examination negative. Complains of an increase of the "stupid feeling," when the current from seven Leclanché cells is passed through the mastoids or temples. There is a feeling in *both* feet as if a

"thousand extremely fine needles were run through the stockings, and darted through the deep flesh of the foot." This is much worse in the right foot, but distinctly felt in the left also. This feeling is particularly felt when the patient puts on his stockings. There is no objective anomaly in the left foot. The patient took a glass of water and carried it to his mouth with his right hand, spilling a little, complained of considerable difficulty in swallowing, and expressed himself as requiring great watchfulness to avoid taking down solids, as well as fluids, "the wrong way."

September 26th. Patient, after doing considerable running around the city, and becoming overheated, the day previous, awoke unable to use his tongue, but, after a few minutes, regained its use. All his subjective sensations, particularly the dizzy sensation, aggravated. Left knee jerk increased.

February 8th, 1882. Another attack of a similar character; the speech disturbance is much more permanent, however. The patient stumbles a great deal through his words; his syllables are occasionally intermingled; he loses his thread in conversation, and exhibits some amnesia. He called on the writer on the 13th, the same month, presenting a gradual improvement in this symptom, but some amnesic aphasia remained behind. Dysphagia continues.

February 19th, 1882. Fell down in a faint-like condition, while crossing the Bowery, did not lose consciousness entirely, as he claims, but was much bewildered and alarmed. Two tramps lifted him up and led him to his office. He felt his pockets, to see that their assistance had not extended to the removal of their contents. The expression of the patient is that of an absent-minded person; there is some contraction of the right pupil; no change in the subjective sensations; nor in the general sensibility and motility of the patient. There is much hesitation in speaking, and ataxic and amnesic aphasia are noted; both of slight grade. The patient had been cautioned against leaving his residence and the caution is renewed. Dysphagia continues.

June 22d, 1882. Was called to the patient's residence for the first time. He has taken to bed, on account of an increase in the dizzy feeling and general malaise. He is able to walk about as well as since his illness, but has become apathetic and somnolent. His right hand is slightly œdematous, and, according to the patient, was more so yesterday. He takes a deep breath frequently, and yawns a great deal. The "drawn-together" feeling is less marked than formerly on the right side. The tongue is angry and heavily coated; but the appetite is fair. He was seen in much the same



condition on the following dates: June 23d, June 29th, and August 2d. On August 4th, he passes his urine unconsciously, on two occasions in one day; there is slight right hemiparesis, with paraplegic weakness of the lower extremities; the right hand is so much swollen that the patient is hardly able to close it. The tongue, as a whole, inclines to the right, but the point deviates to the left; a coarse tremor is observed in it. He does not appreciate when his bladder is full, though his general consciousness is not noticeably impaired. He recognizes a difficulty in finding the right words to express his meaning. His speech otherwise is thick.

July 6th, 1882. The contraction of the right pupil is greatly increased.

July 10th, 1882. Tingling of *both* lower, and a *subjective* sense of *stiffness* in both upper extremities are complained of. Both symptoms are more marked on the right side, and continued, gradually diminishing, as per notes of August 13th and 17th. No contractures.

August 20th, 1882. A chilly sensation was noted since the last visit, which still continues; it is general, but more marked in the trunk and right side. Patient finds it difficult to protrude his tongue, and he speaks with great difficulty. There is slight left ptosis; the pulse is full, slow, and regular; and a peculiar emanation from the body is noted. This is the last occasion on which the patient's examination could be satisfactorily made. Up to this date, no anomaly of sight or hearing has been present, and the urine has throughout been normal. The intelligence to-day is fair.

August 25th. Passes water and fæces involuntarily, and wanders in mind. Occasionally he speaks deliriously, tells the writer that he heard the latter had been ill, when there was no real or supposed occasion for the remark. The cold sensation has continued since the last visit, and is intense and agonizing. Although the outside temperature is unusually high, the room close, and all the bedding possible placed on him, it cannot be relieved, even with the perspiration rolling off in streams. The temperature is 98.2° F.

August 27th. The breathing has been stertorous day and night in spells for the last two days; there is right ptosis, the previous ptosis on the left side is not noticeable; the right pupil continues extremely myotic. The patient got up and passed water in the chamber three times without assistance, and without exhibiting any considerable motor impairment to the relatives; the last oc-

casion of the kind was this morning. At present (afternoon) he is delirious, speaking about suspensory bandages, and other articles of his business, incoherently, and presenting a sort of *mandé* movement, tendency toward the right side. There is incontinence of urine, and a bed-sore appears to be developing over the sacrum. The patient is unable to move in bed, both sides appear powerless. He is not distressed on being moved. Has evidently had some kind of visual disturbance this morning, whose character it is impossible to ascertain, but he failed to recognize a spoon and a plate. Now he admits seeing distinctly. On remaining a while with him, and rousing him, the writer was recognized, and the patient pronounced his name: Do-ek-tor dsir-dsirp-pitsch-spidschka. He replies rationally to questions, but has to be roused; the cold feeling still persists, but is less annoying. There is some hilarity in the patient's manner, he has wanted to get out of bed, though unable to rise. The temperature is  $101.5^{\circ}$  F. There is much drooping of both angles of the mouth, cutaneous reflexes feeble, conjunctival reflex normal. Pulse 54, soft and full.

September 3d. Patient fell out of bed yesterday. He is unconscious, the head continually digging into the bed-clothing on his right side. The visit was a hurried one, the writer having been called in the midst of his office hours, and no further examination was made.

The patient died at 9:30 A.M., comatose, having reached the age of sixty-two years, three months, and six days.

## II.—RECENT POST-MORTEM APPEARANCES.

An autopsy was made at half-past one o'clock on the day of death, four hours after the latter event occurred. Only the cranium and its contents were examined. The writer was assisted by Drs. N. E. Brill and F. A. McGuire.

*Body* well-nourished, slight œdema of the right arm, moderate hypostasis, skin otherwise normal, right pupil narrower than its fellow, both angles of mouth droop, the left most so. No rigor mortis.

*Skull* brachycephalic, symmetrical, no anomaly of scalp, bone, nor morbid degree of adhesion to the membranes.

*Dura* normal.

*Arachnoid*.—Yellowish opacities near the great Falx, otherwise normal. The cerebro-spinal fluid escapes in at least twice the normal quantity, and is tepid, feeling to the hand (outside temperature being in the nineties) as if of over  $100^{\circ}$  Fahrenheit. Un-

fortunately no thermometer was employed before the fluid escaped.

**BLOOD-VESSELS.**—Both internal carotids rigid. A large calcified patch on the middle part of the basilar, a smaller one at its junction with the right vertebral, and a third at the bifurcation into the posterior cerebrals. The posterior communicating, as well as the anterior cerebral arteries exhibit numerous small atheromatous patches. The middle cerebral is a little more rigid than normal vessels, but like its primary branches exhibits nothing noteworthy.

**Ventricles.**—The ventricles are of normal dimensions, excepting the lateral ones, whose posterior cornua are much dilated. The eminences at the floor of the fourth ventricle are well marked, striæ acustici well developed. There are slight extravasations over both caudate nuclei, under the ventricular endyma, which is thickened; these extravasations are not larger than a pin's head.

**Left Cerebral Hemisphere.**—A focus of a creamy color with firm circumference, measuring about one centimetre in diameter in every direction, in the frontal lobe at the anterior level of and above the lenticular nucleus; two millet-seed-sized cysts with soft walls, at the posterior portion of the same nucleus in the white substance, and between it and the posterior end of the island of Reil. The posterior portion of the internal capsule is soft, and in parts diffuent, the softening seems to have involved some strands more than others, the latter remaining in situ, the former sinking away from the section in their dehiscence. Within five centimetres of the terminus of the posterior cornu (in front of it) two foci of softening are found, one over the roof, the other to the lateral side of the ventricular lumen. The softening is not intense, and appears to be fascicular. Near the deepest part of the parallel fissure, there is another patch of softening, of the appearance of what is known as lacunar softening. Slight discolorations (faint bluish-gray, with a loss of lustre) were found in the white substance of the region of the internal perpendicular occipital sulcus, as also of the first occipital gyrus. A pea-sized spot of subcortical softening was found a half an inch from the apex of the occipital lobe.

**Right Cerebral Hemisphere.**—A surface puckering of the head of the caudate body was found to contain an old cicatricial spot, and there was a millet-seed-sized hemorrhage in the middle of the external third of the thalamus. In cutting across the occipital lobe in the level of the apex of the posterior cornu, it was found that the entire white substance was dotted by over a hundred small depressions. These were closely crowded, and the white substance

corresponding to the depression appeared softer than the intermediate tissue, which, like the brain in general (except where special mention is made), was of normal consistency.<sup>1</sup> There was a spot of not well demarcated softening in the middle of the internal capsule, about an inch in height and half an inch in width and depth. A miliary hemorrhage<sup>2</sup> was noticed in the cortex of the convexity in the border of the intraparietal sulcus. A small hemorrhagic suffusion of the external articular of the lenticular nucleus was also observed.

Both thalami exhibited numerous spots of softening, which were in close proximity to the vessels; none of these exceeded a small pea in diameter, about half a dozen being counted in a section through the pulvinar; in several the centre was occupied by a small cavity. The softened tissue was in most of these spots of a dull-white, or slightly yellowish color, and in three instances of a reddish color, owing to hemorrhagic suffusion; their periphery was not well demarcated.

*Cerebellum.*—Several perivascular hemorrhagic suffusions in the dentated nucleus of the right side. Two miliary patches of softening in that of the left side, several "miliary aneurisms" in each, and in the substance of the cerebellum.

*The Isthmus.*—No external anomaly noted; transverse sections were made in the level of common nucleus of the sixth and seventh nerves, through the anterior third of the pons, and through the middle of the olives. This portion of the examination was hurried; the segments were carefully placed in a bichromate of potash solution and the jar containing them in an ice box. A detailed examination was made at the writer's office. On the left side of the posterior face of the middle one of the three segments into which the pons was divided, a grayish spot was observed nearly corresponding to the hiatus (Plate I., Fig. 2, 4) in the accompanying illustration. No manipulation was made to ascertain its nature, in order not to sacrifice any of the tissue required for microtome work. On the anterior face of the succeeding segment a reddish juice appeared to exude from the surface over an area corresponding to the dark field referred to. The tissue was noted to be of a light grayish-red color to the left of the raphe. No ac-

<sup>1</sup> In the hardened specimen (bichromate of potash method), this appearance gained in distinctness, and the depressed spots became crumbly, while the other tissue hardened normally.

<sup>2</sup> At least a dozen other cortical hemorrhages were subsequently found on dissection of the parts removed and hardened, and, as most in such cases, the existence of others was to be suspected.

curate location was made of it at the time, and it was then regarded as a contiguous tissue degeneration of the focus recognized higher up. The segments were then preserved in jars surrounded by ice, and after the hardening had been completed, as the writer had not sufficient leisure to make the microscopic sections, were transferred to glycerin. This summer over six hundred of a larger number of sections made from the isthmus with the writer's microtome,<sup>1</sup> were mounted, a third of the specimens being in the possession of Dr. N. E. Brill, who assumed a large part of the work of cutting and mounting them.

### III.—MINUTE APPEARANCES.

The softened areas in the cerebral hemisphere exhibited the characteristic appearances of recent necrotic softening, evidences of organization were found only in the periphery of the focus of the right frontal lobe.

The focus of disease in the pons was determined, on comparing the sections made of that part of the isthmus, to consist of a cavity (Plate I., Fig. A, 3, and Fig. B, 2, 4), with partly organized walls and intense contiguous tissue changes, whose distribution is recognized in the illustration, by the deeper shade around the cavity which is indicative of the degree of carmine staining found in the diseased tissue (Fig. B, 7). At the level of the motor nucleus of the trigeminus (Fig. A, 3), the cavity was reduced to a mere horizontal slit, while the area of tissue change around it occupied nearly the entire field of the lemniscus (fillet), failing to reach the raphe by two millimetres,<sup>2</sup> and extending laterally to the motor root of the fifth pair (Fig. A, 2), without in any way involving it. In lower sections, the cavity gradually became larger and advanced ventrad, involving the transverse fibres of the pons immediately below the lemniscus field (Fig. B). The contiguous tissue change involved the raphe, and in diminishing intensity extended across the median line about two and a half millimetres. Still further caudad, the walls of the cavity became irregular, and hardly a millimetre behind its greatest diameter it came to an end, failing to involve the facial nerve nucleus, or the roots of the sixth pair. As the exact distribution of the destroyed and diseased areas is a matter of considerable importance and, as just indicated, differed in its relations in various levels, a description of the latter is here given.

<sup>1</sup> Described in the *Journal of Nervous and Mental Diseases*. April, 1888.

<sup>2</sup> All measurements from the mounted sections.



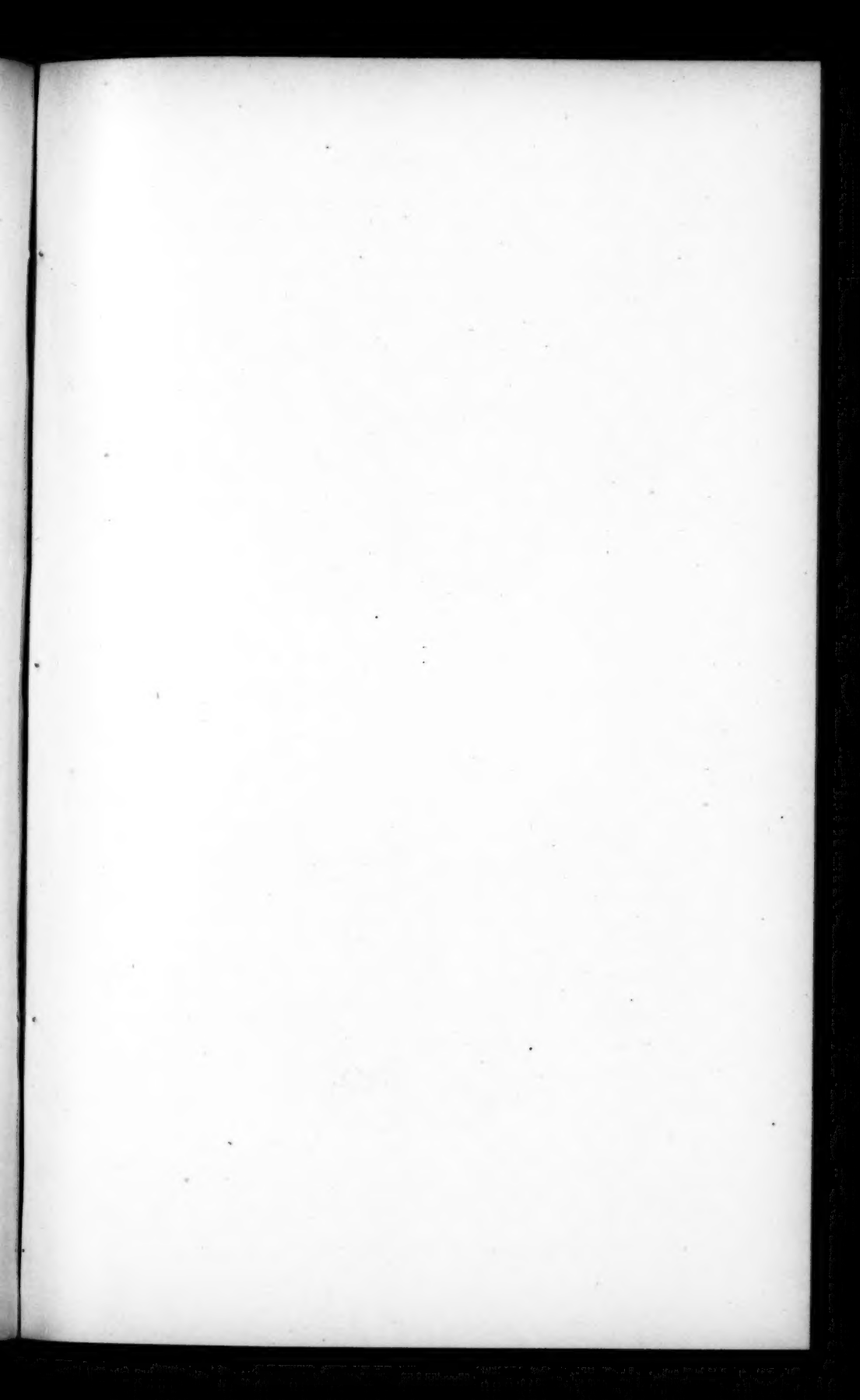


PLATE I.

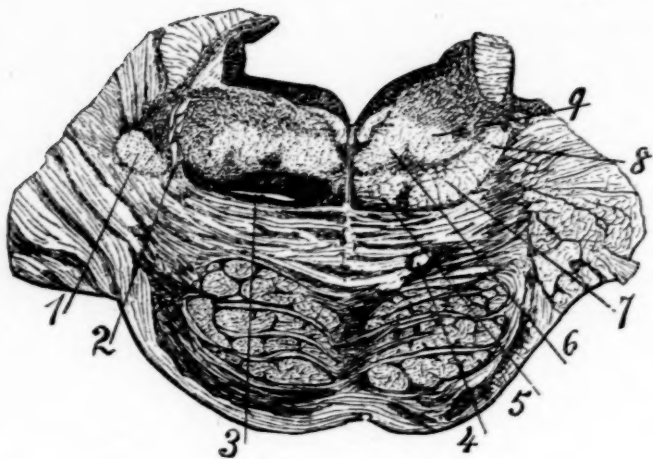


FIG. A.

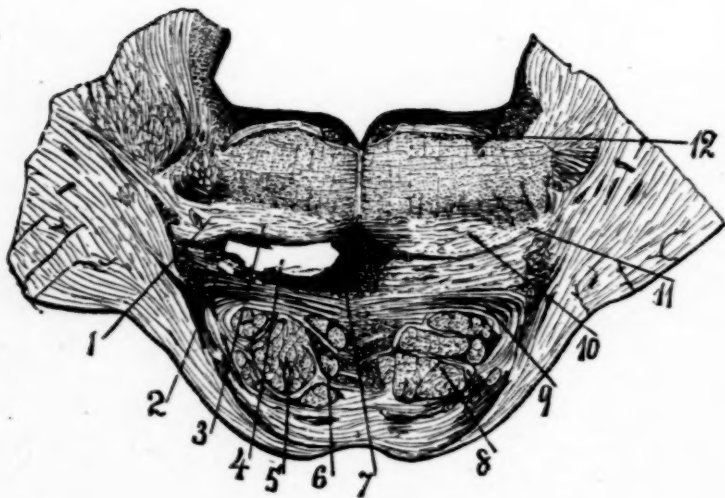


FIG. B.

1. *Uppermost Level of the Motor Root of the Fifth Pair*, upper end of the cavity.—It is here a slit, measuring three millimetres transversely, and occupies the greater part of the middle third of the distance between the raphe and the motor root; it is situated in the ganglionic substance, intercalated between the most dorsal pons fibres and the middle portion of the fillet (lemniscus layer). The contiguous lesion involves almost the entire lemniscus layer of the left side, failing to reach the raphe, not involving the triangular medial area of the ganglionic intercalation, and leaving unaffected the most dorsal of the medial lemniscus fibres.

2. *Lower (caudal) Level of the Root of the Fifth Pair*.—The cavity is still a slit, but of twice the extent above given; it extends nearly from the raphe, which it fails to reach by three mm. to the motor root, measuring five and a half mm. transversely. It is arched, with the convexity downwards. The contiguous lesion has the same extent as in the first level.

3. *Below the Motor Trigeminal and above the Upper Facial Levels*.—The cavity measures vertically (dorso-ventrally) two mm.; transversely, eight mm.; of which latter dimensions, two mm. extend beyond the median line. It is situated just below the lemniscus layer, not involving it, but occupies the place of the most dorsal transverse pons fibres at their decussation, and to the left thereof. The contiguous lesion on the left side involves the most median part of the lemniscus, and some of the most ventral fibres of the lateral portion; leaving the greater part of the lemniscus altogether intact. It also involves the neighboring pons fibres, failing to reach the vertical (pyramidal) bundles by one mm. On the right side it involves the ganglionic substance ventrad of the lemniscus, and slightly the pons fibres. The right lemniscus is altogether normal.

4. *Level of the Genu Facialis, above the Exit of the Facial Root*.—The cavity simulates a right-angled triangle, whose short side is vertical, and corresponds to the median line, while the smallest angle is lateral. The raphe is destroyed in the entire length of the short side of the gap. The latter involves the dorsal trans-

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PLATE I.—Transverse sections of pons, showing the seat of the primitive lesion. Figure A, section taken near the level of exit of the fifth pair. 1, sensory root of the fifth; 2, motor root of same; 3, lesion; 4, small cyst in right half of pons; 5, inner division of lemniscus; 6 and 9, tegmental fields; 7, middle division of lemniscus; 8, lateral division of same. Figure B.—1, 3, 10 and 11, lemniscus fields; 2 and 9, ganglionic intercalations of the pons; 4, cyst; 5, 6 and 8, vertical (descending) fibres of pons; 7, contiguous lesion near cyst.

verse pons fibres and raphe only. The area of contiguous lesion invades the lemniscus layer for from one to two mm. in the transverse, and for nearly two mm. in a vertical direction; it extends slightly across the median line, and into the transverse pons fibres.

5. *A few sections lower down than the last level* (Fig. B, Plate I.).—The upper spur of the cavity replaced by tissue, the lower portion as above. Contiguous lesion not as marked towards the lemniscus, nearly of the same extent as regards the pons fibres.

6. *In the highest level of the lower Facial Nucleus.*—The tissue is friable, and leaves a frayed-out slit about four mm. in the transverse direction, and not thicker than a hair. It corresponds to about the middle altitude of the gap in Figure B. The contiguous lesion is of similar extent transversely, but of only one-third the height in the previous level. It stops just short of the trapezium fibres.

Histologically, the walls of the cavity differed considerably in different regions. Definite organization had advanced much further in the upper than in the lower portions. Above, the wall was well defined, smooth, and composed of a fibrillary connective tissue staining deeply in carmine. Here and there were bundles of atrophic nerve-fibres, large granular cells, and groups of numerous bodies, of the dimensions of a white blood-corpuscle and of similar morphological characters, but uniformly stained by a greenish-yellow and brownish pigment. A few irregular masses of black amorphous pigment were also observed. The nerve-cells in the immediate neighborhood of the cavity and its contiguous area showed no morphological changes. There were observed a number of cellular bodies in the area of contiguous (reactive) disease, whose nature could not be clearly established, but which the writer is inclined to regard as degenerated nerve-cells, and remnants of such. Characteristic spider-cells were found in considerable number, particularly in the deeply-stained area bordering on, and in one level, involving the raphe. The blood-vessels in the neighborhood showed the sclerotic changes observed in other parts of the cerebral vascular system.<sup>1</sup> Lower down, the cavity was not lined by as smooth and even a wall as above. There was a faintly-stained mesh-work, whose trabecula consisted of straight fibres, with nuclei sparsely scattered between; in the lateral angle of the cyst, there were found a large number of granular bodies, of a greenish-yellow and brownish color, without other admixture.

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<sup>1</sup> The writer does not consider it necessary to give the histological minutiae, which were in no sense novel nor peculiar to the case before the reader.





PLATE II.

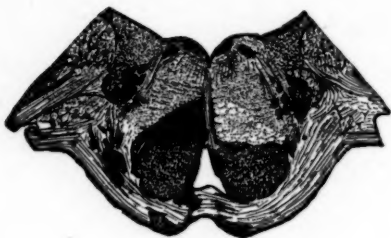


FIG. 1.

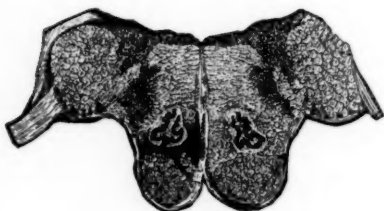


FIG. 2.

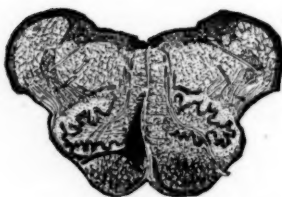


FIG. 3.



FIG. 4.

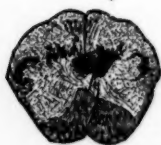


FIG. 5.

The original lesion in the pons must be regarded as hemorrhagic, the cavity as a resorption-cyst, while the contiguous lesion consisted in the inflammatory reaction of the neighborhood. There had probably been recurrences of hemorrhages in the neighborhood of the original one, which widened and extended the area of disease downwards (caudad), and whose last exacerbation was represented in the hæmatozin-colored granules just mentioned.

Connected with the diseased focus, and merging more or less gradually into the area of "reactive" and contiguous change, there were two systemic degenerations of nerve tracts—a descending, limited exclusively to the stratum intermedium, and an ascending one, involving the lateral parts of the lemniscus. The former, being the more complete and clearly-demarcated of the two, will be first described.

#### *The Descending Degeneration.*

In the level of emergence of the sixth pair, the degeneration involves the vertical fibre bundles which pass down through the transverse fasciculi of the trapezium. The latter are normal, but the shrinkage of the degenerated bundles has led to a decrease in height of the trapezium's area. The tegmental field bounded by the lower (ventral) facial nucleus, the trapezium and the abducens roots is normal, but the field between the trapezium, raphe, and abducens roots exhibits some degeneration. The most intense degeneration is in the vertical bundles included in the trapezium field. It involves all those bundles, is nearly absolute, and extends laterally one and a half millimetres beyond the abducens roots, medially to the ganglionic substance accumulated on either side of the raphe.

Somewhat above the level where the abducens radicles pierce the trapezium, but within their level of origin, the degeneration is much better demarcated, and the contrast with the healthy area more distinct, owing to the lesser amount of ganglionic intercalation. The trapezium fibres are also more abundant, and cover the field between the raphe and abducens roots which was degenerated below. In other words, the entire area of the degenera-

tion falls within the trapezium field. The left field which includes the degenerated vertical bundles is not more than two-thirds the area of the corresponding right field. This level corresponds to level "5" of the description of the primitive lesion.

Still higher, in the level of the cavity (level "6" of the description of the primitive lesion), the vertical fibres are affected in precisely the same area as in the level just described, except where encroached on by the primitive lesion.

In the lower pons level, where the main mass of the ventral facial nucleus is found, and where the section exhibits the post-pontile fossa as an angular gap, the area of the degeneration is triangular. The vertical side of the right angle corresponds to the raphe, the horizontal side to the dorsal aspect of the pyramids, and the hypotenuse extends diagonally from a little below the middle tegmental altitude of the raphe to the lateral upper edge of the pyramid. A few branch-like extensions of the degeneration invade the territory of the pyramid. (Plate II., Fig. 4.)

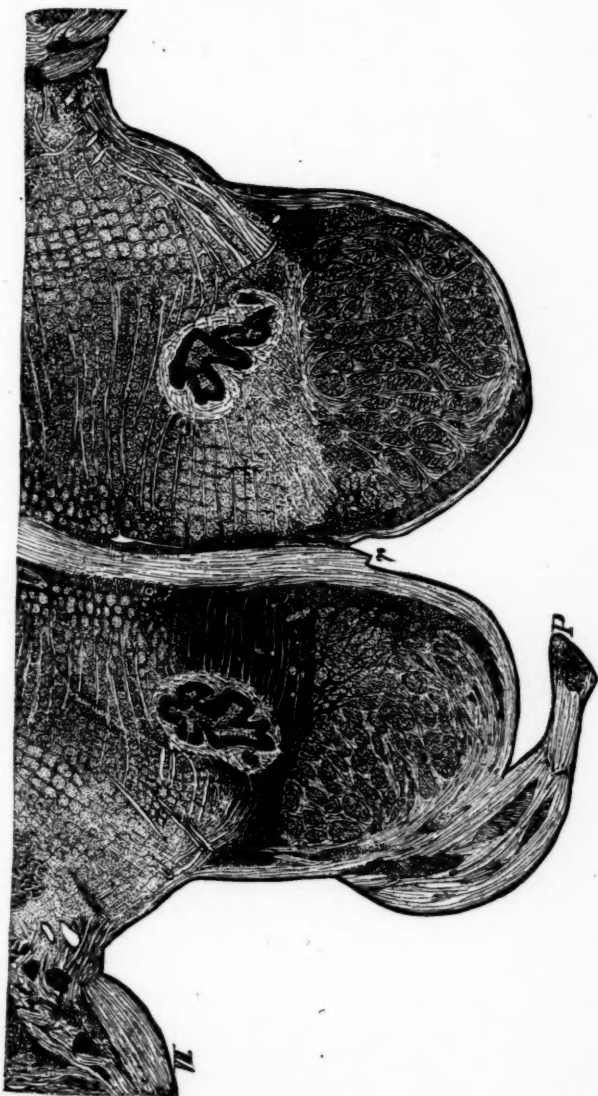
Just below this level, that is, corresponding to the posterior edge of the pons, the triangular area of the degeneration is broken into by the upper (cephalic) end of the olivary nucleus. This latter, as well as its included fibres, and those surrounding fibres which give rise to the appearance of an olivary *halo*, are entirely normal. The contrast between the healthy and diseased area is very striking; and the latter is divided into three portions: a mesal, larger field adjoining the raphe, and a smaller triangular one adjoining the lateral and ventral contour of the olive. The two are united by the slender third portion, which underlies the olive. (Plate III.<sup>1</sup>)

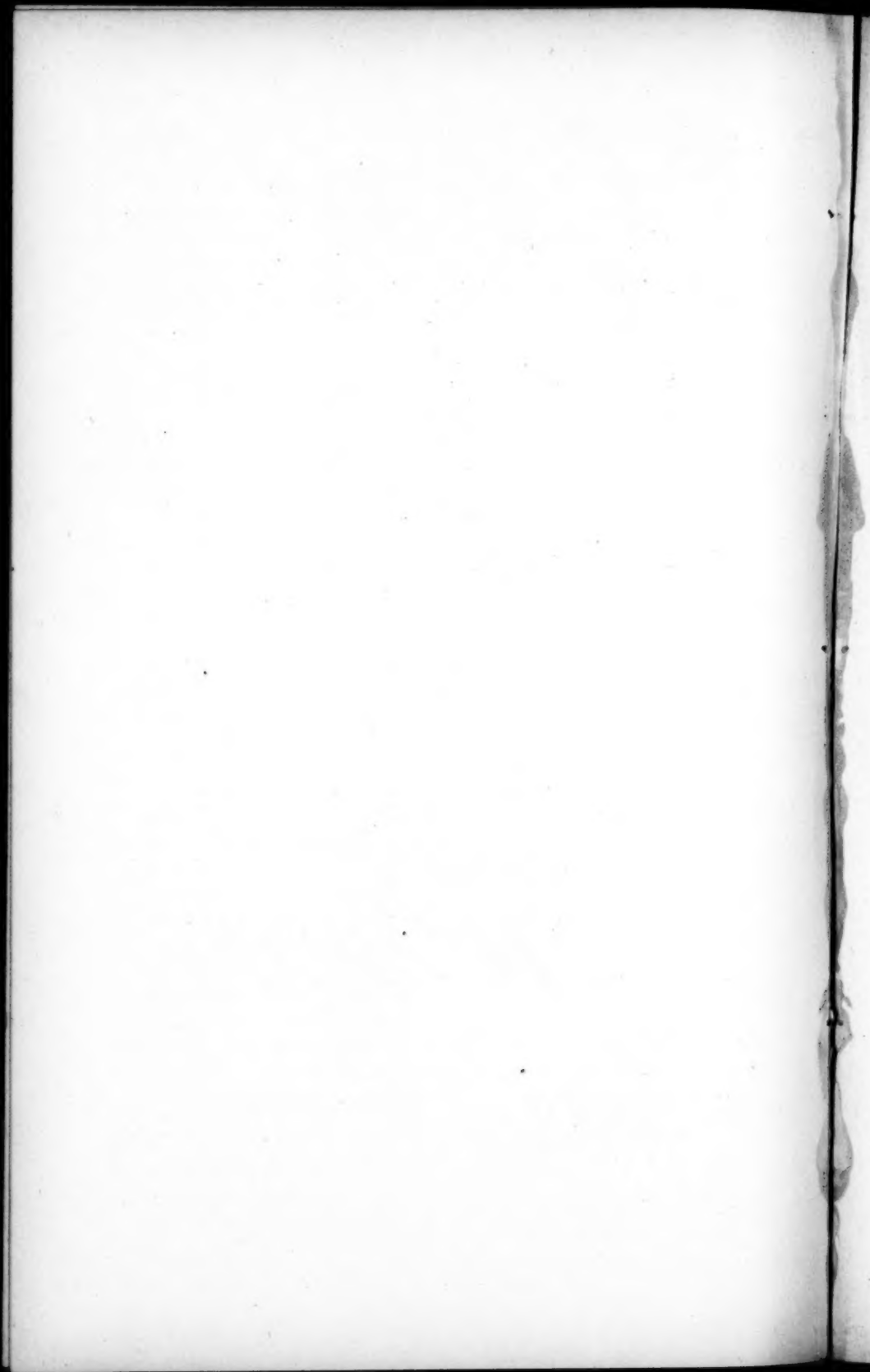
In the uppermost part of the oblongata, very much the same relations are noted as in the level just described. With the increase in the olivary area, the connecting piece becomes more attenuated, being pressed out, as it were, between pyramid and olive. Large spurs are seen extending into the pyramidal field. (Plate II., Fig. 2.)

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<sup>1</sup> PLATE III.—Lower (ventral) half of a section through the medulla oblongata, immediately behind (caudad of) the pons. At *P*, the edge of the pons has been cut by the knife; *r*, raphe; VII., emerging facial root. The contrast between the shrunken dark field of the left stratum intermedium, and the pale normal one of the right side is well represented. The lateral spur of the degeneration appears larger than it is, owing to its merging into the ganglionic and molecular substance near the dorso-lateral edge of the pyramid. It can be easily eliminated by comparison with the normal side.

PLATE III.







In the middle of the olivary eminences, the mesal field of the degeneration ceases to resemble an irregular quadrangle, becoming elongated and angular; the degeneration becomes more scattered dorsad, being distinctly interrupted by the *fibræ arcuatæ internæ*. The connecting piece has become more slender still, and the lateral triangular field is smaller than in the last level (Plate II., Fig. 3).

Sections through the lower apex of the olive show a marked change. All three divisions of the degeneration are represented, but are much reduced in all dimensions. This applies particularly to the mesal segment from which delicate strands are seen crossing the piniform decussation.<sup>1</sup> The powerful arched fibres emanating from the latter and curving around the hypoglossal nucleus *on the right side* are invisible, their place being occupied by a tissue absorbing considerable carmine. This appearance can be distinctly traced into the undulating fibres which field off the nuclei of the columns of Goll and Burdach into sub-nuclei. Perhaps the greatest contrast between the healthy and diseased fibres was to be seen in this and the following level, that is, in and below the altitude of the *decussation of the descending degeneration*. On the left side the characteristic picture of a large pale field (*f'*, *f''*, *f\**, Figure 2, and *f*, Figure 1, Plate IV.) formed by the fusion of the arched fibres from the piniform decussation, and which intrudes itself between the nuclear masses of the posterior columns, contrasts markedly with the right side, where gray and white substance form one common mass—apparently—owing to the even absorption of staining fluid by both. Figure 1, Plate IV.; Figure 4, Plate II.; Figure 2, Plate IV.; and Figure 5, Plate II. in the order named, represent the changes in this condition as we pass from the higher to lower levels. In the last named, that is, at the cephalic commencement of the decussation of the true pyramids, no degeneration is observed on the left side of the median line, the lesion having undergone *absolute and complete decussation*. What remains is all to be found on the *right side* in the situation indicated in Figure 5, Plate II. (diagrammatic).

Before the sections were stained, and while being cut in the microtome, the lesion could be followed almost as well as after staining. In the sections made above the decussation, the degenerated area was recognizable by its lighter

<sup>1</sup>Upper, fine-bundled and sensory pyramidal decussation (of Meynert). Decussation of the stratum intermedium, piniform decussation (Spitzka).

color as compared with the corresponding field on the other side. In the level of the decussation, no visible discoloration was found in the raphe. The difference here noted consisted in the marked pale color of the healthy right internuclear field *f*, and in the absence of any similar field on the left side. Here, owing to the darkening of the white substance, the nuclear demarcation was not recognizable as under normal circumstances. In other words, the degenerated fasciculus, where exposed in cross section, was lighter; where exposed in longitudinal section, it was darker than the healthy fibre bundles. This is just the reverse in health; as is well known, fibre bundles in specimens hardened in chromic salts appear dark in cross section, and lighter in sections coinciding in direction with the fibres.

If we conceive of the degenerated fields as an entity, the column they represent might be aptly described as comparable to a rod whose upper end was triangular and on the left side of the raphe, whose middle portion was encroached on by an olive-shaped excavation, and whose lower end, breaking up into separate strands, was bent rather sharply across the middle line, and at the same time curved dorsad so as to terminate in the nuclei of the posterior columns. As a whole, the degeneration corresponds to the known relations of the interolivary layer of Flechsig, the lower continuation of the stratum intermedium of Meynert, and the lower portion of the bundle from the pes to the tegmentum of Henle. All these are terms applied to one and the same nerve tract. Its connection with the nuclei of the posterior columns, surmised by Flechsig, and anticipated somewhat crudely by Meynert, is established as a fact by this case, for the degeneration could be traced among and into these nuclei, and not beyond them nor into the spinal cord.

But not alone were the appearances of the sections

changed as regards the differences in the tints of the healthy and diseased areas in both stained and unstained specimens; the consecutive shrinkage of the degenerated area had led to alterations in position and shape of neighboring parts. Thus the raphe was bent with the convexity of the bend towards the degenerated area (Plate II., Fig. 3; Plate IV., Fig. 1). The left pyramid was slightly drawn up, as it were, into the substance of the oblongata, as if to occupy the void which would otherwise have been left by the shrinking stratum intermedium; at the same time it had increased in the dorso-ventral, at the expense of the transverse diameter, as an expression of the shrinkage of the degenerated area from side to side (Plate II., Fig. 4; Plate III). The *fibræ arcuatæ*, passing from the healthy side across the median line through the diseased area, while intrinsically healthy, ran an unusually undulatory course owing to the shrinkage of their matrix. While the average area of the left side of the oblongata had suffered in its ventral half by the shrinkage of the left stratum intermedium *above* the decussation of the lesion, it was the upper part of the right side which showed some diminution in area, *below* this decussation.

The microscopic characters throughout were the same, and such as are found in characteristic cases of secondary degeneration, their enumeration may hence be advantageously waived. There was scarcely a nerve-fibre left in the most ventral part of the degenerated field, either in the upper or the lower levels. In the middle, a number of counts showed a proportion of three fibres with intact myelin and properly stained axis-cylinder to sixteen on the normal side, and dorsally the normal fibres became more numerous, the diseased area passing gradually into the healthy part of the tegmentum. All this applies to every level of the degeneration. The greatest shrinkage was due to the atrophy—almost comparable to a cica-

tricial contraction of the field situated between the pyramid, internal accessory olive and raphe, and including the "connecting piece."

The condition of the *fibræ arcuatae* is very suggestive, particularly in the lower half of the oblongata. Not alone are the beautiful (crossed) fasciculi of the field *f* invisible with low powers upon the right side, but those which field through the olivary nucleus, that is, those which lie just ventro-laterad of the former are also far less distinct upon the right than upon the left side. They are stained deeply by carmine and show beginning degenerative changes.

This difference is all the more remarkable, and the conclusions to be drawn from it become the more irresistible, when the condition of those fibres is studied which (in the same level) pass through the sclerotic left stratum intermedium. These show more carmine staining than those of the other side, but intrinsically appear to be normal. This is the more remarkable, as in this particular level the degenerated area measures only *one-third* the transverse diameter of the healthy stratum intermedium of the opposite side. It is true that the transverse fibres passing through the sclerotic patch have been twisted and bent from their normal straight course into an undulatory and zigzag one, and that the axis cylinders appeared to be crowded together. No intrinsic abnormal appearance could be noted, however.<sup>1</sup>

The normal vertical (cephalo-caudal) fibres in the degenerated field are not single or scattered, but in bundles of from three to fifteen in this level.

The internal accessory olive touches the degenerated field, but its substance is in no way involved.

The arched fibres which pass from the raphe to the trineural fasciculus,<sup>2</sup> are few and in part degenerated.

In higher levels, the same appearances are found as far as the fibres of the field *f*, and those connected (?) with the ganglionic intercalation of the trineural fasciculus are concerned. No difference is, however, observable between the fibres passing through the olivary nucleus. It may, therefore, be claimed, that, except as far as a small portion of the fibres passing through the meso-

<sup>1</sup> It is exceedingly difficult to determine the existence of incipient secondary degeneration in narrow fasciculi exposed in longitudinal section.

<sup>2</sup> *Fasciculus teres*, Clarke; *Respirations-bündel*, Krause. Gemeinsam aufsteigende Wurzel des seitlich gemischten Systems, Meynert; trineural fasciculus, Spitzka.

dorsal part of the lower olivary apex are concerned, the fibres of the olivary system are intact.

It is noted that, at about the middle altitude of the hypoglossal nucleus, the large fasciculi which running ventrad of the nucleus from the raphe, curve into and around its lateral portion, are atrophic on the right side, *while the fibre coils, inclosing the hypoglossal subnuclei as well as the emerging root itself, are less distinct than on the left side.* No positive degeneration can be discovered, but one of the fields where a radicle should be found, consists of a connective-tissue septum.

The cells of the olivary nuclei, the reticular formation, and the hypoglossal nuclei of both sides, are normal in number, but show much greenish-yellow and brownish pigmentation.

In all sections cut above the level of the pyramidal decussation the atrophy of the nucleus of the right column of Goll was distinct and considerable (Plate IV., Fig. 2). In some sections the square area of the atrophic nucleus was not two-thirds, and in a few not over one-half of that of its fellow. At the same time the atrophic nucleus appeared to be deeper stained in carminized sections than the normal one. On closer examination, this was shown to be due to the disappearance of the undulating and anastomosing fibre strands which course among the "subnuclei" of the nucleus of the column of Goll. Several counts revealed a diminution in the number of the ganglionic elements of the nucleus, but no active signs of degeneration were discoverable.

There was no such difference between the nuclei of the columns of Burdach as that existing between the other nuclei of the posterior columns. It appeared, however, to be connected with the nucleus of the column of Goll by a bridge of stained tissue on the right side, which was composed of degenerated nerve-fibres, belonging to the field *f*<sup>2</sup>.

Neither the fibres of the column of Goll, nor those of the column of Burdach, showed the slightest sign of degeneration. The connective-tissue septa were rather more numerous and thick than is ordinary in young and healthy subjects; but this condition is not rare in persons as advanced in life as the subject of this paper.

While the degeneration of the fibres which cross from the stratum intermedium to the column of Goll was absolute, that of the fibres which leave the same tract to curve round and into the gray matter of the trineural fasciculus was partial. Healthy fibres could be seen in many, particularly the higher sections; in some



levels these fasciculi were only one-sixth the number of those of the healthy side.

It is worthy of note that the trineural fasciculus, which anatomically is analogous to the column of Goll, in so far as it represents an interrupted continuation of the stratum intermedium, exhibits similar features under pathological circumstances. The atrophy extends only to the intercalated nucleus, and does not involve the fasciculus proper; just as the main degeneration was arrested at the nucleus of the column of Goll.

It is reasonable to assume, as the secondary degeneration was less advanced in those *fibræ arcuatæ* which pass to the ganglion of the trineural fasciculus than in the others at the time of death, that it was in relation with a very late symptom made manifest during B—r's life history, namely, the dysphagia. The trineural fasciculus, it is well known, constitutes a source of origin for the pneumogastic and glossopharyngeal nerves, and the likelihood

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EXPLANATION OF PLATE IV.—Fig. I., section through the oblongata in the middle hypoglossal level, magnified four diameters. C, nucleus of column of Goll; B, nucleus of column of Burdach; *f*, the field formed by the coalition of the *fibræ arcuatæ* derived from the opposite stratum intermedium through the piniform decussation (*r*). *arc*, *fibræ arcuatæ* contributing to the field *f*; *t*, trineural fasciculus; *D*, degenerated stratum intermedium; *Ds*, intermediate portion of same; *Da*, lateral portion of same.

Fig. II., section through lowest hypoglossal level, magnified six times linear. The letter D is affixed to all the degenerated parts. These are: *D*, the main mass of the descending degeneration whose remnant is preparing to cross the median line; *Ds\**, degenerated fibres joining the intermediate division of the degenerated field from the pyramids; *Da*, the lateral spur of the degeneration; *Dr*, degenerated fasciculi crossing the raphe in the piniform decussation; *Darc*, degenerated *fibræ arcuatæ*; *Df1*, degenerated fibres passing directly into the column of Goll; *Df1\**, point where the shrinkage of the field *f* is most intense, as can be seen on comparing the corresponding part on the normal side (*f1\**); *Df3*, degenerated fibres fielding through and under the nucleus of Burdach's column, before entering the nucleus of Goll's column.

The corresponding lettering without the letter *D* indicates the corresponding parts of the undegenerated field: *I*, healthy stratum intermedium; *o*, inner (lower) accessory olive; *Is*, subolivary spur of stratum intermedium, corresponding to the "connecting piece" of the opposite degenerated field; *na na*, nuclei of arciform fibres; \*, fibres leaving pyramids to enter stratum intermedium.

PLATE IV.

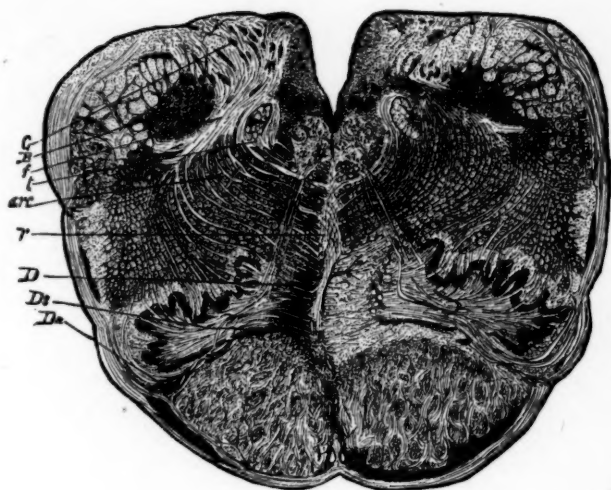


FIG. 1.

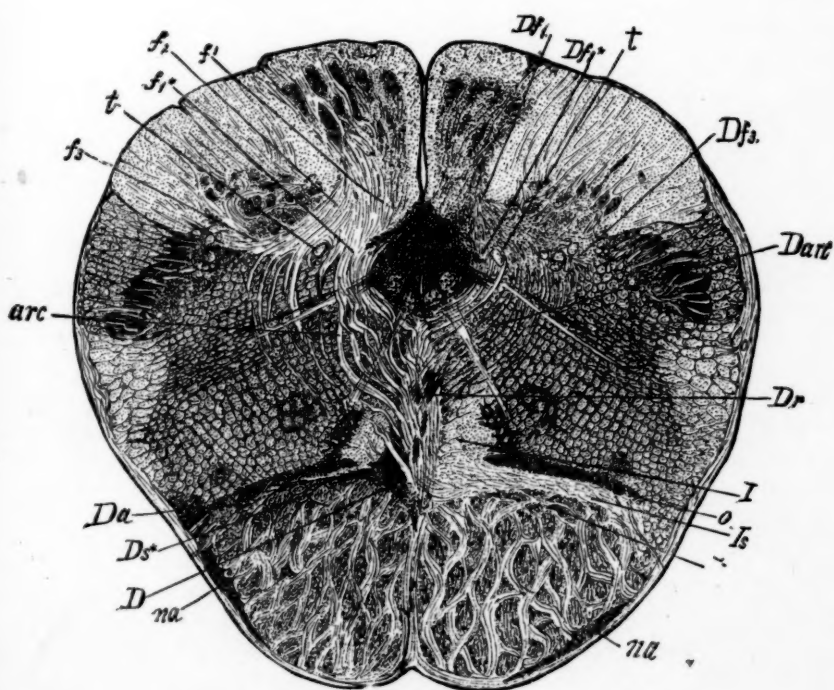
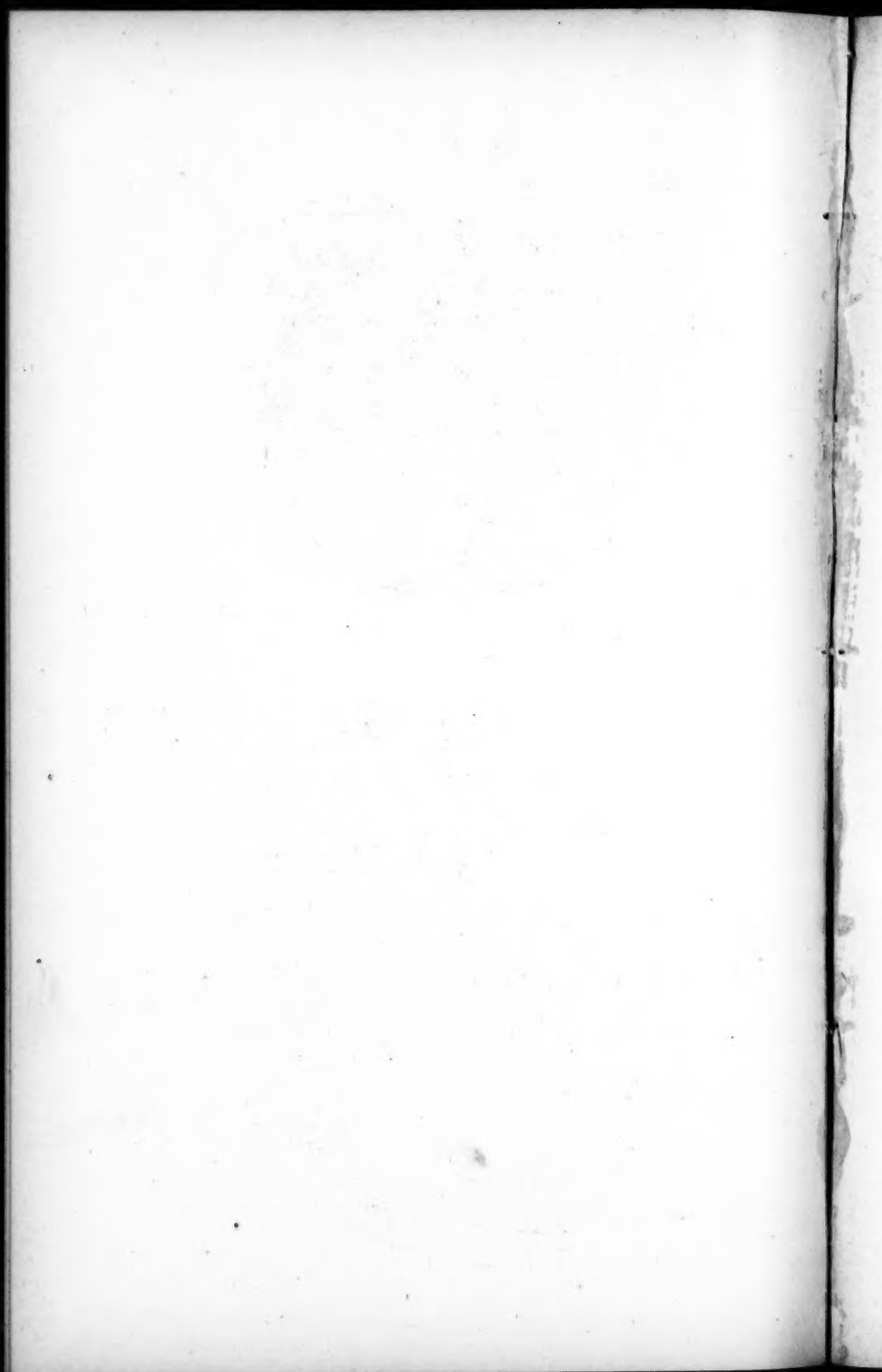


FIG. 2.



of a disturbance of a function of those nerves, when their connection with higher centres is interfered with, as was the case in B—r, is very great.<sup>1</sup>

*The Ascending Degeneration.*

Starting from the upper end of the cyst in the pons, there was a continuous degeneration and atrophy of the middle third of the lemniscus. Those fibres which arch over the external contour of the isthmus in the level of the emergence of the fourth pair, and just to the outside of the tegmentibrachium (brachium conjunctivum), are normal, but the horizontal branch of the letter L-shaped field which the lemniscus here constitutes was deeply stained by carmine and shrunken. The atrophy ceased at half the distance between the periphery and the raphe. It could not be satisfactorily traced beyond the level of the posterior pair of the corpora quadrigemina. Here it occupied a more lateral position than in lower levels. It was impossible to identify that division of the lemniscus which passes into the thalamic region on the left side. On the right side the characteristic field was readily identified.

*Homén's Case.*

In the earlier part of last year, Homén reported<sup>2</sup> the first authentic case of a degeneration which in part affected the same nerve tract changed in B—r. No physiological deductions are derivable from it, because there was simultaneous degeneration of the pyramidal tract of

<sup>1</sup> Differing from Krause, who derives the trineural fasciculus ("Respirationsbündel") from the spinal cord, the writer, several years ago, in his "Architecture and Mechanism of the Brain," traced it to the piniform decussation, and thence inferred its origin from the stratum intermedium.

<sup>2</sup> Ueber secundäre Degeneration im verlängerten Mark und Rückenmark (aus dem Leichenhause des städtischen Krankenhauses zu Berlin) von Dr. E. A. Homén aus Helsingfors (Finnland). Virchow's Archiv, Bd. 88, Heft 1, p. 61, 1882.

the same side. The anatomical description is somewhat ambiguous. It, as well as the clinical history reported by Homén, are in the main abstracted below.

August Rubehn, aged forty-eight, experienced an apoplectic attack in 1876, with right-sided persistent paralysis. On June 14th, 1879, he was received at the hospital, and died June 16th, 1879, in a dyspnoic state due to cardiac disease. The post-mortem showed hypertrophy and dilatation of the heart, cerebral arterio-sclerosis, and a focus of softening in the left half of the pons and descending degeneration of the left pyramidal tract. The left half of the pons was sunken in, and of a grayish color. This color extended superficially over the right side. On the left side the gray discoloration extended deeply into its substance. The focus of disease involved almost the entire left half of the pons, superficially it contained a whitish substance with irregular margins, and of about the size of a pea; at another part there was a cavity of about the same size, whose walls were very fragile. The left pyramid is reduced to nearly half the size of the right, and its substance is of a grayish transparent tint. The right crossed pyramidal tract<sup>1</sup> and a small area of the left anterior column in the spinal cord are in the same condition down to the lumbar enlargement. A section through the focus shows that the left pyramidal tract and lemniscus are destroyed by it, and that it nearly touches the median line (raphe). No degeneration is observed above the lesion. There is a distinct brownish discoloration and decrease in size of both the left pyramidal tract and lemniscus in the oblongata. The right anterior cornu in the cord appears diminished in size, although no diminution of its cells, nor any disease of the latter can be detected by means of the microscope.

Homén's report contains the following obscure passages: The change extends, although in much less intensity, backwards over the lemniscus layer.<sup>2</sup> This may mean either that the degeneration became less intense posteriorly (caudad), that is, towards the spinal end of the oblongata. As we have seen, in our case the "intensity" of the lesion was equal throughout. It might also signify that

<sup>1</sup> Hinterseitenstrang.

<sup>2</sup> Die Veränderung erstreckt sich, obschon in bedeutend geringerer Intensität, nach hinterwärts über die Schleifenschicht.



there was a fainter degeneration towards the ventricular aspect of the oblongata and pons. This interpretation is strengthened by a feature in Homén's illustrations, to be referred to.

He says further:<sup>1</sup> "At about the middle of the point of decussation, a continuation of the change backwards of the lemniscus layer is no longer distinctly perceptible, and still deeper it becomes invisible." There are a number of decussations in the oblongata; probably it is to the decussation of the pyramids that Homén refers. If so, it is quite clear why he failed to follow it any lower, as the stratum intermedium (so-called lemniscus) decussates as a totality, and a degeneration of this tract *must disappear on the side of the lesion, immediately cephalad of the pyramidal decussation*, because it crosses the median line. It is to be inferred from the length of time (three years) that Homén's patient survived the original lesion, that the ensuing degeneration must have extended across the raphe, as in the writer's case. The writer would hesitate to suggest that so important a feature as the crossing of a megascopically visible degeneration had escaped the attention of the observer cited, did not his illustrations, as previously hinted, show evidence that the distribution of the tract degeneration had not been accurately studied in other respects. While the area of the degeneration in the representation of a pons section corresponds closely to that represented in Plate II., Figure 1, of this paper, it is in the drawing of the oblongata, corresponding to Fig. 3, same plate, made to extend up to the hypoglossal nucleus, and fills out the entire area between the raphe and hypoglossal radicles. Now, as this area includes the posterior longitudinal fascic-

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<sup>1</sup> "Ungefähr in der Mitte der Kreuzungsstelle, ist von einer Fortsetzung der Veränderung hinterwärts über die Schleifenschicht nichts mehr vollkommen deutlich zu verfolgen, und noch tiefer hinab ist von Veränderung nichts mehr zu sehen."

ulus of the tegmentum,<sup>1</sup> and also a part of the reticular formation—that is—fibre systems, independent of the lemniscus, stratum intermedium, and pyramids, Homén's diagram must be regarded as representing a very remarkable form of secondary degeneration indeed.<sup>2</sup>

*Paul Meyer's Case.*<sup>3</sup>

While from an anatomical point of view, Homén's case constitutes a valuable contribution, if for no other reason, because the degenerated tracts were, as far as studied by their author, well demarcated, Meyer's observation is much more valuable from a physiological standpoint. As this writer states, his case constitutes one of those unusual instances of pons disease in which the results of an elimination of special parts of the nervous apparatus are equivalent to those of a physiological experiment. The main points of the history and anatomical description of his case are subjoined :

*History:*—B. W., aged forty-eight years, married. Five years ago, a slight apoplectic attack with residual weakness of the arm, which disappeared completely. The present disease dates from a subsequent attack, occurring February 1st, 1870,<sup>4</sup> after an angry discussion. Paralysis was not at first observed by his wife, but she noticed that the patient could not speak properly. A physician who was called in, found right facial paralysis, difficult enunciation, deviation of the tongue to the left; strong flexion-contracture in the left elbow, none in the fingers. The patient could stand and walk, his legs not being stiff, no difficulty in swallowing, pinching was felt, and the intellect was undisturbed. At first there was no headache, but three days after, severe pain occurred,

<sup>1</sup> Hinteres (dorsales) Längsbündel der Haube.

<sup>2</sup> Homén's observations concerning the immunity of the transverse fibres (internal arcuate fibres) agree with those of the writer. By an error of his artist, the degenerated areas are represented as being about twice the size of the normal fibre-systems, while in the text it is consistently stated that they were much reduced.

<sup>3</sup> Op. cit.

<sup>4</sup> Probably a clerical error, the writer must have intended to say 1880, as he speaks of the disease having lasted a few months, and of the *previous* attack occurring *five* years before.

and during a heated discussion his head struck against the bed-panel, and he fell out of bed. The following morning he could not recall these occurrences; his intelligence was much disturbed and he did not recognize his physician. His left arm was stiff, but not paretic. Delirium followed, extending nearly up to the ninth of February.

During this period the patient complained of a burning and roaring feeling in the left ear, of difficulty in speech, and the left arm was found absolutely anæsthetic and analgesic. There was motor weakness of the left arm, whose movements are uncertain, and the left leg is paretic and highly anæsthetic. He can only feel the puncture of a needle when passed through a fold of the skin. On the tenth, the patient could be properly examined. He was found well-nourished, complained of vertigo, of pain in the forehead, of weakness of the left arm, although moving it freely in all directions, continually pulls the fingers of the left hand with his right. There is complete right facial paralysis. On the right cornea and conjunctiva sensibility is much impaired, there is much blepharitis and conjunctivitis with beginning keratitis, the right abducens is completely paralyzed, also the left internal rectus muscle; the pupils react properly, and there is hyperæsthesia in the distribution of the right trigeminus nerve, except on the cornea.<sup>1</sup>

There is considerable lack of skill in the movements of the left arm and left hand. On placing the hand on the top of the head it drops down, when not supported, but the patient is capable of replacing it, making zigzag manœuvres in so doing. The motor paresis of the left leg can no longer be demonstrated, the contracture of the arm has also disappeared. Patellar reflex present on both sides, exaggerated on the left.

Anæsthesia is marked on the entire left half of the body, including the face and trunk, tickling scarcely perceptible on the left planta pedis, while on the right prompt reaction occurs.

The patient continues to relapse into delirious and soporous states. The facial hemiplegia remains unchanged, but the ophthalmic affection improves, the left half of the trunk regains sensation, until the anæsthesia is scarcely demonstrable here, while it continues to be marked in the extremities of the same side. The speech became normal. When asked to take a glass with his left hand, he uses the right to push it into the grasp of the left, then the left fingers clutch it spasmodically and in irregular spas-

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<sup>1</sup> And conjunctiva (?).

modic and zigzag movements, it is passed to the chin, and moved around till the mouth is found. The coarse power, as indicated by the dynamometer, is R. 70, L. 50. The left arm is thinner than the right, the muscles flabbier, the skin of the left palm dry and desquamating, the nails appear to become rounded off on the sides. Unpleasant sensations in the left arm and right shoulder are complained of. Strong pressure on the left biceps is scarcely appreciated. A needle is felt more acutely on the right than on the left side, the hyperæsthesia becomes undemonstrable, and the sensibility on the left thorax remains blunted some time. With closed eyes the patient can neither bring a spoon to his mouth nor take hold of a lead pencil. There is slight analgesia of the left side of the back.

The patellar tendon reflex and the ulnar tendon reflex<sup>1</sup> remain exaggerated on the left side and the ocular paralysis remains as related.

Later still, the motor power improved, the chief complaint of the patient being the tinnitus and the vertigo. A test with geometrical objects showed that, while the patient could recognize their shape with his right, he could not do so with his left hand, and sometimes he dropped them. He returned to the hospital on June 8th, and an accurate examination on July 5th revealed the following: The pricking of a needle is felt much less intensely on the left than on the right sole, the anæsthesia is more marked on the left leg and thigh than on the sole, sensibility is better, though distinctly reduced, on the left half of the abdomen. Sensibility for ordinary contact, with the head of a pin for example shows corresponding differences. On the left nostril it is less than on the right.

The patient cannot distinguish ice from hot water on his left arm. On his face he detects differences of temperature readily. An addition of five to fifty grams is recognized with the fingers of the right hand, with the left an addition of 500 grams to 50 is not appreciated. The right ciliary reflex is diminished. Although coarse motility is not appreciably interfered with, the dynamometer shows R. 42, L. 20. Nodisturbances of taste, smell, hearing power, and lingual sensibility.

On the right side of the face, the faradic excitability of both nerve and muscle, and the galvanic excitability of the nerve had completely disappeared. Galvano-muscular excitability is fair, but the contractions are slow. There is no anomaly in the electrical reactions of any other muscles. On August 25th, improvement in the motor power and movements of the left hand; there

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<sup>1</sup> Not examined in the writer's case.

is marked flattening of the right side of the face. Death on October 19th of a pulmonary complication.

*Post-mortem appearances in the brain.*—Numerous small foci of a transparent tissue in the centrum semiovale, extensive miliary aneurismal changes, and arterio-sclerosis; ventricular endyma slightly granular. Right facial nerve in fatty degeneration, also the right abducens. There is a depression in the anterior right quarter of the fourth ventricle remarkable for its intense brown color. Corresponding to this discoloration a hemorrhagic focus was found whose greatest extent was slightly behind the level of origin of the fifth pair, where it and the contiguous degeneration destroyed nearly the entire tegmental half, clear to the raphe up to the floor of the fourth ventricle, invaded the dorsal transverse fibres of the pons, and left only a part of the posterior longitudinal fasciculus intact. A little lower in the uppermost facial levels, it had the distribution indicated in the diagram (Plate V., Figure 1), and disappeared a few millimetres below this. Above it extended to the level of the locus cœruleus with a gradually tapering apex.

The disease focus and its contiguous degeneration involved and disorganized the reticular formation in part; in fact, in the maximum area the entire half of the tegmentum appeared to have undergone a sort of cicatricial contraction. Even the cells of the substantia ferruginea were in part involved higher up, the descending root of the fifth pair was cut off from the main root, the motor nucleus of the left trigeminus was pale and contained granular cells, its proper ganglionic bodies appeared to be well preserved, there was some hemorrhagic infiltration of the left convolutio quinti (sensory nucleus of the exit level). The raphe root of the fifth pair is destroyed.<sup>1</sup> The focus also extends into the trapezial fibres, the superior olive (nucleus of the trapezium, Spitzka), the common nucleus of the sixth and seventh pairs, the lower facial nucleus, and the roots of the abducens and facial are decidedly degenerated.

There were both ascending and descending degenerations, which evidently resulted from the focal destruction described. The ascending degeneration was the least intense, and involved the middle and lateral portions of the left lemniscus, leaving the most medial fibres intact. This degeneration disappeared in the level of the corpora quadrigemina.

The descending degeneration involved the entire stratum inter-

<sup>1</sup> Meyer speaks of the *Fasciculus teres* as being degenerated; which one he means it is difficult to surmise.



medium,<sup>1</sup> the entire olivary nucleus and the intra and extra-olivary fibres; its distribution can be best gleaned from a glance at Figs. 2, 3, and 4 of Plate V.<sup>2</sup>

Meyer's case differs from the writer's anatomically and physiologically in many respects. The destructive process was at least fivefold as extensive as in B—r; the following parts were intact in the latter which were destroyed or morbidly affected in Meyer's patient: nearly the entire tegmentum, the roots of the fifth, sixth, and seventh pairs, the facial, common facial—abducens, and trigeminal nuclei. The descending secondary degeneration in Meyer's case also covers a much larger area (treble), involving, in addition to the stratum intermedium, which alone was degenerated in B—r, the olivary area, entirely including what is ordinarily called the lemniscus field (fillet).

Meyer does not seem to have traced the degeneration across the median line, though from his language it is evident that the normal crossed connection of the stratum intermedium with the nuclei of the posterior columns was before his mind. He does not mention any degenerated fibres in the raphe, among the fibræ arcuatæ, or among the nuclei of the columns of Goll and Burdach, while all these parts are represented as healthy in his excellent illustrations. If anything, the arcuate fibres derived from the degenerated area are represented a little more distinctly than those of the opposite side.<sup>3</sup> In the writer's case, on

<sup>1</sup> Included with the lemniscus by Meyer.

<sup>2</sup> EXPLANATION OF PLATE V.—Diagrammatic sections through the third (1) and fourth (2) posterior quarters of the pons, the middle (3) and lower third (4) of the oblongata. The transverse lines indicate the extent of the lesion and consecutive degeneration in Meyer's case. To facilitate comparison and contrast, the distribution of the degeneration in the writer's case is indicated by vertical lines, its site being transferred to the same side as that which was affected in Meyer's case.

<sup>3</sup> Arch. f. Psych. u. Nvkrheiten, xiii., 1, Tafel II., Fig. 10. The following language may refer to an observation of which there is no other trace in Meyer's paper, and, as above stated, no indication in his figures: "Abgesehen von Bestandtheilen des Seitenstranges, sind hier gerade solche Fasern degenerirt, welche

PLATE V.

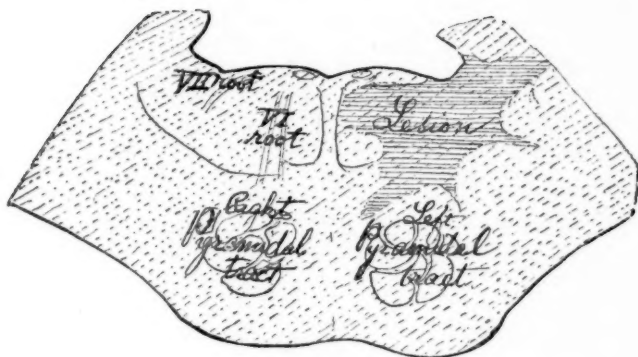


FIG. 1.

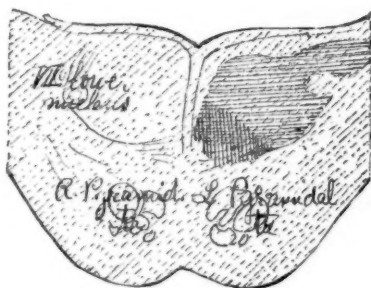


FIG. 2.

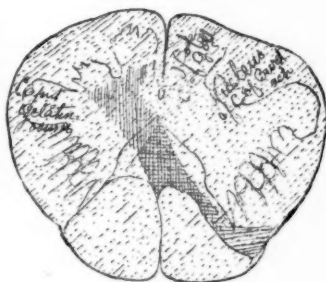


FIG. 4.

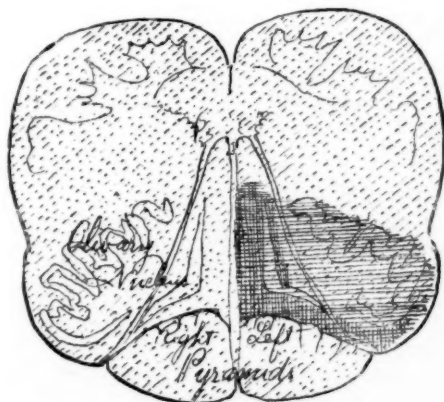
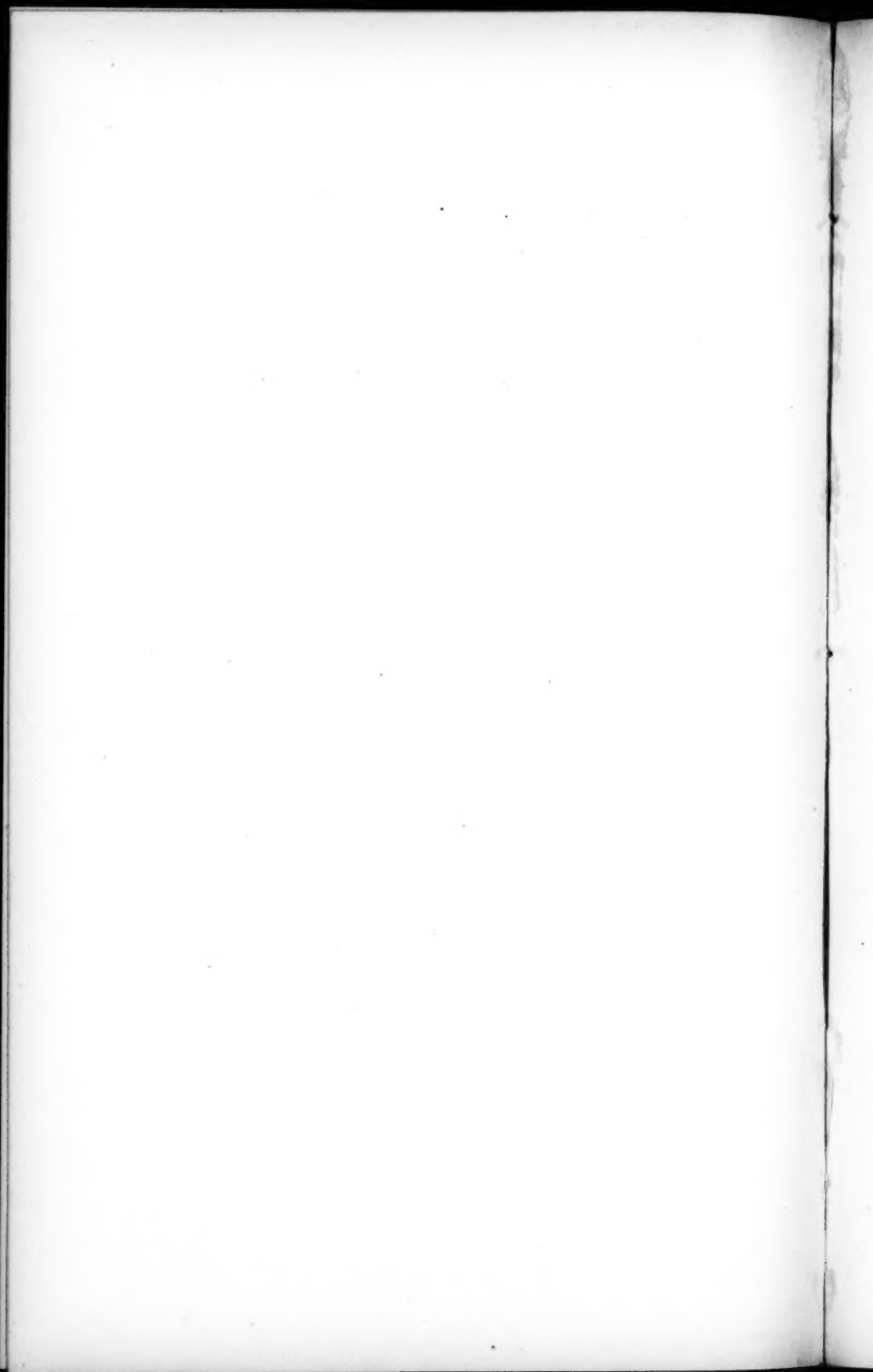


FIG. 3.



the other hand, the differences were gross, and the shrinkage and disappearance of the bundle of fibres passing into the posterior columns, as well as the decussating sclerosis in the raphe, were among the most striking features of degeneration found. It is possible that the degeneration in Meyer's case had not proceeded across the median line owing to the briefer period (eight and one-half months) his patient survived the original lesion, as contrasted with that of B—r's survival, which was six years, or nearly nine times longer.

In comparing the two cases in order to determine differentially between the physiological significance of the tract which was alone degenerated in B—r, and that part which was additionally affected in Meyer's patient, it is necessary to eliminate those symptoms presented by the latter which were due to the destruction of nerve-trunks and nerve nuclei. We must hence leave the facial sensory and motor peripheries as well as the speech disturbance out of consideration. The following are the points in which both cases correspond: 1, Primary deviation of

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unmittelbar der Pyramide anliegend, gegen die andere Seite streben, um dort in das Gebiet der Hinterstränge umzubiegen. Wir wissen ja seit den Flechsig'schen Untersuchungen dass diese Fasern, von Meynert noch der Pyramide zugerechnet, eigentlich der Schleifenschicht angehören sollen. Hier sieht man ganz leicht wie diese degenerierte Zone sich zipfelig zwischen der Pyramide und den Vorderstrangrest, resp. der unteren Olivenspitze erstreckt, und wie von da *Faserbündel* den Vorderstrangrest der unteren Seite durchsetzen und sich um den Centralcanal biegen." (Aside from component elements of the lateral column, it is precisely those fibres which, situated immediately adjacent to the pyramid, tend toward the other side in order to curve around into the region of the posterior columns, which are degenerated. We know since Flechsig's investigations, that these fibres, included by Meynert in the pyramid, ought really to be included in the lemniscus layer. It is here readily seen how the degenerated zone extends lappet-like between the pyramid and the remnant of the anterior column, or the caudal end of the olive, and how from here *fibre-bundles* pass through the remnant of the anterior column of the other [*unteren* is probably a misprint for *anderen*] side and bend round the central canal." Meyer here speaks of fibre-bundles without saying that they were in a pathological condition, thus leaving his readers to infer that they were normal, and to strengthen this impression by looking at his plates.

the tongue to the side of the lesion; 2, primary absence of mental disturbance; 3, crossed hemianæsthesia; 4, constant dizziness; 5, crossed ataxiform disturbance of movement; 6, crossed exaggerated tendon reflexes; 7, crossed diminution of cutaneous reflex (tickling); 8, increase of ataxiform phenomena on closing eyes; 9, crossed inability to appreciate the nature of objects by touch; 10, greater intensity of sensory disturbance in the extremities than in the trunk; 11, diminished sense of temperature (much greater in Meyer's case); 12, diminished sense of weight (much greater in Meyer's case); 13, no important changes in the electrical reactions; 14, crossed subjective sense of the extremities being cramped or drawn together (Meyer's patient pulled his left fingers continually).

The following are the additional symptoms of Meyer's case: 1, Crossed hemiparesis; 2, crossed contracture of arm; 3, crossed analgesia; 4, crossed muscular wasting; 5, crossed trophic disturbances, of the kind found with ordinary hemiplegia. It is not possible to draw any inferences from the other symptoms present in Meyer's and absent in the writer's case, owing, as stated, to their possible dependence on the focal disease and independence of the tract disease. It is very natural to assume that the crossed hemiplegic, hemi-contractural, and trophic phenomena, as well as the analgesia, which were not found with the pure destruction of the stratum intermedium (B—r) are attributable either to remote effects of the lesion on the pons, with its included pyramidal tract—which is unlikely—or to the destruction of the reticular field of the tegmentum, or finally to the disease of the olivary portion of the lemniscus field (lemniscus proper).

The symptoms in B—r's case, which were constant and attributable to the original lesion, and excluding those which are not properly comparable to those in Meyer's case owing to the nuclear and neural destruction in the



latter, are the following: 1, peculiar paræsthesias, such as a singing sensation, extreme subjective sense of numbness; 2, unilateral throwing of the crossed lower extremity, as in locomotor ataxia; 3, crossed feeling of insecurity; 4, terminal (five years) extension of subjective sensations to the left foot; 5, terminal dysphagia. The last two symptoms have been already referred to the effects of the sclerotic process on the nerve-fibres passing from the normal (right) stratum intermedium through its sclerotic fellow. It is readily seen why these symptoms should be absent in Meyer's case, for evidently the sclerotic process had not reached as great an intensity, nor extended as low down and as grossly across the median line as in the writer's case. The date at which these symptoms appeared in B—r, that is, in the fifth year of his illness, supports this view. On the whole, the symptoms of B—r during his first years and of Meyer's patient, who did not survive the first year, differ very much as a complete section differs from a compression or other partial lesion of a sensory nerve-trunk. In the former case we have a complete abolition of function; in the latter, a partial obliteration with subjective phenomena, like tingling, etc. But another comparison also presents itself, that of a general transverse lesion of the spinal cord, with nearly complete sensory and partial motor paralysis representing Meyer's case, and the limited lesion of posterior spinal sclerosis representing B—r's case. Physiologically, the latter admits of a much more satisfactory discussion than the former.

Meyer seems to be under the impression that it is nearly the entire lemniscus which crosses in the so-called upper sensory decussation of Meynert, whereas it is the stratum intermedium portion, and it alone, which so decussates. Probably, if his patient had lived a little longer, an extension of the degeneration in a different direction would

have pointed out the course of the great part of the lemniscus, about whose spinal relations we know almost nothing. In the anterior part of the lateral column of the upper portion of the cervical spinal cord (as low down as the origin of the third pair), Meyer identified an extension of the degeneration into the most anterior portion of the lateral spinal column. Here it occupied a crescentic area, nearly touching the periphery, and becoming fainter, disappeared at the level mentioned. This corresponds to the lateral or olivary portions of the fillet, and has been traced into the same part of the cord by Meynert.

It should be stated, while there is a general resemblance in the pathological features of Meyer's subject and the writer's, extending to the nature of the focal pons lesion, which in both cases was a hemorrhagic one, to the presence of capillary hemorrhages, of miliary aneurisms and of extensive arterio-sclerosis, that his patient had had syphilis, while B—r had never been infected with syphilis nor exhibited any manifestations suggesting such infection.

#### *Conclusions.*

The immediate onset of the peculiar ataxiform symptoms displayed by B—r, their coincidence with a fit apparently provoked by straining at stool, and the age of the patient suggested their causation by a hemorrhagic lesion. The writer, in this case, made the diagnosis of a lesion in the pons, at first on the strength of an observation of Leyden's, who states that ataxic phenomena have been observed in pons disease. Later on, he localized the disease more minutely in the stratum intermedium and in the precise locality where it was afterwards found,<sup>1</sup> and indicated that locality to several colleagues, among whom one attended the autopsy. During the last months of the

<sup>1</sup> The writer had in the mean time been led, by his anatomical studies, to express the conviction that Meynert's sensory tract to the forebrain must be sought for in the upper fine-bundled decussation and stratum intermedium.

patient's life, the writer began to entertain doubts as to the correctness of his view. These were not provoked by the occurrence of other encephalic lesions, for the existence of these could easily be surmised, and differentiated from the older and more constant symptoms referred to the pons, but by the bilateral extension of the latter.

The writer believes that the extension of paræsthetic phenomena to the left foot, later to the entire limb, and later still to the entire left side, may be accounted for by the injurious influence which the sclerotic process in the left stratum intermedium *must have exerted on the fibres passing through it from the nuclei of the left posterior column to pass to the right lemniscus*. Anatomical evidences of severe compression, extending to dislocation of these fibres, were abundant.

Indeed, it is a question whether all of the paræsthetic, and perhaps some of the anæsthetic, phenomena exhibited on the right side are attributable to the lesion of the stratum intermedium alone. In Meyer's case, these symptoms were more intense, and there was, with this, absolute degeneration of the olivary division of the lemniscus. Perhaps, in the writer's case, the pinching of the olivary decussation by the shrinking of the degenerating tract had some relation to those symptoms which became aggravated towards the close of the patient's life.

Among the peculiar symptoms displayed towards the close of B——r's history, the continuing subjective sense of extreme cold is one of the most interesting. The writer is unable to offer any explanation for it, but would state that analogous observations have been made by himself in the case of two paretic dementes, now under observation. In both, the motor and emotional disturbances are of a kind pointing to the oblongata as the seat of severe disease. In one patient, there is an almost continuous sense of cold; in the other, there are numerous severe chills,

varying from one to a dozen in number during a day, and one of which the writer had the fortune to witness. The chill was marked, the patient pale as death, his surface not noticeably colder, but his teeth chattering as intensely as in a patient suffering from a severe malarial chill.<sup>1</sup> That such symptoms should occur with disease of a segment of the brain, which physiology attributes a relation to the thermic regulation to, is not surprising.

The slight atrophy of the right hypoglossal nerve led to no symptom which during life would have justified the positive diagnosing of a unilateral affection. It is interesting mainly as suggesting the possible relation of the degenerated pyramidal fibres (*Ds\**, Figure 2, Plate IV.) to the opposite hypoglossal nerve nucleus. There was anarthric speech disturbance, which was most intense wherever the other symptoms were so; but it could not be decided that only one nerve was affected.

The following propositions seem to the writer to be sustained by the anatomical study of the case of B—r, and its comparison with the only two other cases in which a partially similar lesion was found.

1st. The so-called lemniscus layer contains in its mesal portion an individualized column of fibres of high physiological importance, which decussates in the so-called sensory decussation of Meynert.

2d. The *stratum intermedium*, as this bundle should be called, for reasons to be advanced further on, is a tract mediating an essential factor of voluntary motility: co-ordination.

3d. The ataxia of movement observed in destruction of this tract is not due to a loss of tactile sensibility. The latter was not sufficiently impaired to account for the ab-

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<sup>1</sup>Thermometric observations were made, but somewhat late, on this occasion and were negative. Subsequently, nitrite of amyl was found to act as an efficient palliative of this symptom.

solute unilateral ataxia attributable to the division of the stratum intermedium.

4th. The stratum intermedium is not purely a centripetal tract. It degenerates centrifugally.

5th. Physiologically, it appears to be, in part at least, centripetal; this is shown by the paræsthesias and hypæsthesia complained of by B—r.

6th. The remarkable fact strikes the reviewer of this case that, while the stratum intermedium is probably the continuation of the column of Goll and, in part, of Burdach, towards the cerebrum, the secondary degeneration of the spinal part of this (ideal) tract degenerates centripetally, while the cerebral portion degenerates centrifugally, the point to which both converge being the nuclei of the posterior columns.

7th. Flechsig's statement that there is no direct continuation of the posterior columns into the piniform decussation, but that they provisionally terminate in their nuclei, is demonstrated beyond peradventure by this case.

8th. While Flechsig is also sustained in his denial of a *gross* connection between the so-called upper pyramidal decussation of Meynert and the pyramids proper, yet there is an intimate connection between the stratum intermedium and pyramid of the same side, extending along the known course of the former tract from its decussation up to the lower part of the pons. It is possible that the connection between the sensory periphery and the pyramids, which Meynert attempted to establish, really exists through the medium of this interchange, though in much lesser degree than the distinguished founder of modern cerebral anatomy surmised.

9th. A comparison of the case of Meyer and B—r justifies the belief that the part which was affected in the former and not affected in the latter has more strictly tactile, that affected in both (stratum intermedium) rather



co-ordinatory functions. For, while the two cases agree very nearly as regards the ataxiform phenomena (the disturbances of the sense of resistance, of muscular co-ordination), and of the sense of weight, the disturbances of tactile and thermic appreciation were incomparably greater in the former. The stratum intermedium seems to be the tract of the muscular sense *par excellence*.

10th. The system of fibres which is represented in the fasciculi arching through the olivary nuclei, those of the external arciform group—and which are not without reason supposed to connect the posterior columns, or rather the latter through nuclear intervention—with the restiform column, is entirely independent of the stratum intermedium. Nor have the olivary nuclei, or any of the tracts connected with them, a connection with the stratum intermedium.

11th. The vertical fibres of the trapezium appertain to the stratum intermedium.

When we cast a brief survey over the connections, which can be anatomically proven or rendered reasonably plausible in the case of the two nuclei of the posterior columns of the medulla oblongata, we are struck by their complexity and the possibilities which these afford for the accounting of the differentiation of the various qualities of sensation. The writer does not here refer to the appreciation of physical qualities as such, that is of simple contact, relativity of contact, pressure, heat, nor the subjective interpretations, such as tickling, pain, et cetera. It seems, physiologically, *a priori* more correct to anticipate a differentiation of nerve paths, with regard to the *organically-useful purpose* of sensorial impressions, that is, their adaptation to the end of reflex, automatic, and conscious reaction and registration. One and the same nerve tract might be supposed capable of conveying *all* qualities of sensation. The application of these qualities of sensation to the active

purposes of the united organism will depend upon the *modus* of central projection and association. It is in this modus of central projection and association that the differentiation will have to be sought for.

Those centripetal nerve tracts derived from the spinal cord which, like the fibres of the olivary decussation, and the direct myelo-cerebellar tract, pass through the cerebellum, are thrown into association with a nerve tract which presumably projects the periphery of the semi-circular canals in that ganglion, a part of the eighth pair. As the appreciation of direction in space is attributable to that nerve tract, it is reasonable to suppose that nerve tracts leaving the spinal cord to enter the cerebellum, do so in order to enable the cerebellum to project certain tactile impressions on the same receptive sphere, for union as the isolated sensation of direction. We would then regard these tracts as subservient to the appreciation of the position and movement of all parts of the body in regard to space and direction. On the other hand, there are tracts, like the stratum intermedium, which, united at one end (through ganglionic intervention) with the centripetal columns of the cord, are connected at the other with far higher centres than the cerebellum. They are also in intimate connection with the will tract (pyramids). It is proper to infer, from the clinical observations cited in this paper, as well as from the demonstrable anatomical connections, that this tract mediates the projection of that finer elaboration of combined tactile and muscular sense, which is essential to deliberate and skilful movements of the extremities. The centripetal cerebellar tracts, from this point of view, constitute a mechanism which is in continual operation, an unceasing regulator of automatic movement, while the stratum intermedium is only utilized for definite and relatively conscious purposes. The latter presupposes the

former, to a certain extent; to some extent, however, each appears to be independent.

*The Anatomy of the Tract Known as the Stratum Intermedium.*

The writer proposes the retaining of the term "stratum intermedium" for the nerve tract whose lower half was found degenerated in B—r. It merits this designation because it is *intermediate* in a topographical and perhaps in a physiological sense. Its upper end, which was first recognized by Henle,<sup>1</sup> is derived, according to that observer, from the base of the great peduncle, and is identical with Meynert's peduncle of the substantia nigra. The latter surmised that it is continuous with the interolivary layer of Flechsig; the tract found degenerated in the case of B—r and in the one reported by Homén. The writer's case supports this surmise.

The designation, interolivary layer, applied to the lower half of this tract, is strictly applicable to that portion only which lies between the olives; it extends as a distinct tract considerably above the olivary level, and hence Flechsig's designation is not applicable to the entire system of fibres.

The stratum intermedium in its upper part is a pedal, and in its lower part a tegmental tract. But the continuous interchange of fibres between it and the pyramidal tract prevents us from subscribing to the very sweeping statement of Flechsig: "The doctrine of the investigator named (Meynert) of a connection of the posterior columns with the occipital lobes through the upper pyramidal decussation, the external bundles of the pyramids, and the pes pedunculi, is therefore devoid of any material basis; it may, with safety, be desig-

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<sup>1</sup> As his "Bündel vom Fuss zur Haube" (bundle from the pes to the tegmentum).

<sup>2</sup> Die Leitungsbahnen im Gehirn und Rückenmark, p. 324.

nated as erroneous." It is true that the connection in question cannot be supported for the entire course laid down by Meynert. But as the writer has shown,<sup>1</sup> the connection of the posterior columns with the crus exists, through the piniform decussation and stratum intermedium, and an interruption in the nuclei of the posterior columns.

But even a connection between the posterior columns (that is, their nuclei) and the anterior pyramids proper, cannot be denied. As seen from the case of Baader, descending degeneration of the stratum intermedium involves certain fibres of the pyramids. These are the very fibres which in normal specimens appear to be detached into the piniform decussation, that is, the so-called sensory pyramidal decussation of Meynert. These fibres may hence serve as a basis for re-establishing, in very small part, the connection claimed by Meynert. On the other hand, it is possible that these fibres pass from the pyramids through the stratum intermedium to the hypoglossal nuclei, and that the partial atrophy of the hypoglossal radicles of the opposite side was in relation therewith. The appearances on the whole rather suggest the former than the latter explanation.

A careful comparative study of the stratum intermedium in various animals is a desideratum. That some remarkable facts may yet be gleaned from such a study is to be inferred from the curious discovery made by the writer in the case of the elephant (Figs. 1 and 2). In this animal the stratum intermedium seems to vicariate for the pyramidal tract. In the pons proper, there are nothing but transverse fibres; the vertical bundles, so beautifully marked in man, the carnivora, and the rodentia, are absent. The stratum intermedium, however, is enormous, larger in levels above the facial nerve root than in the level of the

<sup>1</sup> The sensory connections of the fore-brain; Chicago Medical Review, 1880.

annexed figure (Figure 1, I), and the lower convexity of the tract almost excavates the deeper contour of the transverse pons fibres. In the lower half of the oblongata the ventral bundle of fibres, which corresponds to the contour of the anterior pyramids, is not the pyramidal tract

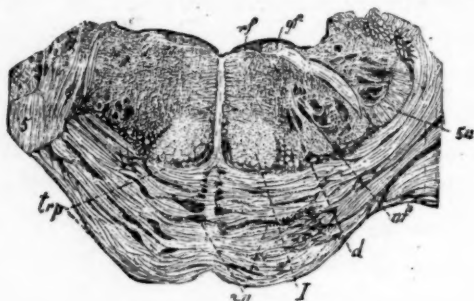


FIG. 1.—Transverse section of the pons of an elephant, aged two years (the animal was presented by Chas. Reiche & Son to the writer). *trp*, transverse pons fibres; *nn*, nuclear intercalations of pons ganglion; *nf*, nucleus of facial nerve; *rf*, raphe root of facial; *gf*, *genu facialis*; *I*, mesal part of stratum intermedium; *d*, lateral part of same; *5a*, ascending root of trigeminus on right side; *5*, emergence of sensory root. The enormous size of the facial nucleus, probably related to the innervation of the trunk, is noteworthy.

at all, but the stratum intermedium, and decussates like it into the nuclei of the posterior columns<sup>1</sup> (Fig. 2, I).

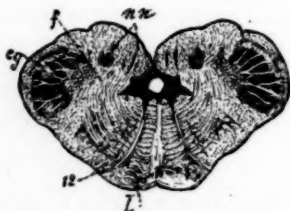


FIG. 2.—Transverse section from lower part of oblongata, obtained from the same animal as Fig. 1. *I*, stratum intermedium; *12*, roots of hypoglossal nerve; *nn*, nuclei of the posterior columns; *f*, field into which the fibres of the stratum intermedium pass through the piniform decussation; *eg*, caput gelatinosum. The large size of the latter is remarkable.

The relations in the cetacea are still more strange. Unfortunately, my single series of sections was obtained from a porpoise, in whom decay had set in, and the sections are

<sup>1</sup> It may be remembered in this connection that Flechsig asserts that in the rat the pyramidal tract passes into the posterior columns.



imperfect and badly stained. In the oblongata there is no pyramid, and the designation of pyramid applied to an elevation on Huguenin's figure of the base of a porpoise's brain is incorrect. The two medial columns correspond to the olivary nuclei and the sub-olivary fibres. There is neither a pyramidal decussation<sup>1</sup> nor a distinct decussation of a stratum intermedium. Fibres can be seen running from the raphe to a large field, which in its shape and relations has no exact analogue in any other animal studied by the writer, and which crowds the caput gelatinosum far ventrad, and the posterior columns and their nuclei mesad. In size it increases gradually downwards, and cannot, for this reason, be regarded as the restiform column, as which the writer first regarded it. The fibres alluded to as running to this field from the raphe, come from the large olivary nuclei, or through it from the interolivary and sub-olivary fields. In the upper part of the cord the continuation of the remarkable field, dorsad of the *caput gelatinosum* remains large.

In the carnivora, the stratum intermedium, and the vertical fibres of the pons (which include the pyramidal tract) are not separated by ganglionic intercalations in the anterior half of the pons, but unite into a common mass *directly continuous with the crus*. The stratum intermedium retains its position near the median line, up to the anterior part of the pons. Above that point it is situated more laterally, and *ventrad* of the ganglion of Soemmering (substantia nigra in man). This condition the writer has verified in a series of transverse sections from the lioness. In longitudinal sections from the cat's brain, the posterior part of the same tract (interolivary layer of Flechsig) is seen to separate into numerous fasciculi which field off the trapezium, curve over, under, and

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<sup>1</sup> The series of sections not being continuous nor complete, it would be more correct to say that there is no pyramidal decussation in the usual location.

through it, to collect again on its anterior edge when they run the same course as the one just predicated for the carnivora in general. In a series of frontal sections, that is, such taken in a plane parallel with the basilar plane of the brain from a dog, this relation is beautifully demonstrated. The stratum intermedium is throughout seen to be distinct from the olivary fasciculus; though parallel with the latter, its fibres have a different optical appearance. In all sections, the stratum intermedium disappears; that is, its fibres are obliquely cut off where those of the pyramid begin. At the apparent junction, the stratum intermedium is forked, as if to receive the pyramid, and is divisible into three parts: one which continues on uninterruptedly by the side of the raphe, and which is very slender; a second, which runs on the mesal side of the pyramidal tract, accompanying it through the pons, interchanging fibres with it, and directly entering the crus, and a third portion accompanying the pyramidal tract laterally, which is the largest, and whose course cannot be determined in these frontal sections. The first and second named portions join as they plunge into the crus, and they are so sharply demarcated that they constitute the most characteristic features of such sections as those described.

The anatomical observations made upon the lower animals seem to indicate that the fibre tract, the results of whose destruction prove its intimate relation to the functions of muscular sense and the thereon dependent coordinations, has a double destination: one following the course ordinarily assigned to the lemniscus, the other applying itself to the pes of the cerebral crus. It is at this region where the greatest uncertainty prevails, and where renewed study, whose results will add much to our knowledge of the central mechanism, is necessary.

It is but proper for the writer to express his obligations to Dr. J. H. Tyndale, who referred the interesting pa-

tient—whose history was given at the outset—to him, as well as to the gentlemen who aided him in the anatomical analysis of the same case, and whose names have been mentioned in the course of the paper.

## SOCIETY PROCEEDINGS.

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### PROCEEDINGS OF THE SOCIETY OF MEDICAL JURISPRUDENCE AND STATE MEDICINE.

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*Seventh Regular Meeting, September 13th, 1883.*

The seventh regular meeting of the Society of Medical Jurisprudence and State Medicine was held on the evening of September 13th, at the Academy of Medicine. A communication from the President, regretting his absence, was read, whereupon, by motion, Dr. C. S. Wood was called upon to preside. The meeting was then called to order and the minutes of the preceding meeting having been next read, were ordered adopted, no corrections being offered.

The Trustees then reported that the next meeting of the Board of Trustees would be held at the office of Mr. Eller, 21 Park Row, at 2.30 P.M., and that the paper for the October meeting would be read by Dr. Wm. A. Hammond, being entitled "The Law of Survivorship."

Mr. E. H. Benn then read the paper of the evening:

#### THE LEGAL EFFECTS OF INTOXICATION.

BY

E. H. BENN, ESQ.,  
Of the New York Bar.

Alcoholic stimulants, or the use of intoxicating liquors, has been an important and interesting subject for consideration from time immemorial, and now, more than ever before, is it seriously engaging the attention of the people

of this, the most enlightened and progressive nation in the world.

Seriously concerning as it does the people of this country individually and collectively, it will be more and more a theme and subject for discussion and consideration so long as it continues to act so important a part as it now does in the affairs, business and social amenities of life. It enters into our politics and our religion. Its influence is felt in the affairs of Government. It is the foundation and the ruin of fortunes. It promotes and destroys friendship. It is a source of revenue to the Government, and a loss to the country.

Its production requires an immense amount of money, of labor, and of land. It is productive of disease, and a prolific source and cause of crime. Yet, notwithstanding its well-known effects, its use has so far withstood all opposition; and there is now, in this enlightened age, the same craving desire for it, and almost the same freedom in its use, that there was in past times when its effect upon the brain and other organs was not so well understood. By that I do not wish to be understood as saying that there ever was a time when the effects of intoxicating liquors were not felt or known, yet we do know, judging from the way the subject was treated in past ages, that mankind, at least in Jewish and Christian lands, did not understand that the use of wine or other intoxicating liquors was injurious; that alcohol was a poison, or that its use was to be condemned.

Although there were those by whom its *abuse* was sometimes condemned, yet history fails to inform us, so far as I have been able to discover, of any in the Christian nations, in the centuries preceding this, who ever condemned its use as a beverage, or considered the free use of wine or alcoholic stimulants injurious or improper.

It seems even now to be a matter about which people



who use it decline to reason, and so far as its injurious effects upon the mind and body are concerned, they leave them out of the account, or consider them of secondary importance; and to promote temporary cheerfulness and gaiety in social intercourse, or oblivion in case of sorrow, or artificial life and spirit when wearied or exhausted, alcoholic stimulants are resorted to, and freely used by the intelligent and refined, as well as by the ignorant and depraved, notwithstanding their effects and whether they are, or are not, believed to be evil or injurious.

We must then deal with this question and this subject as we find it, knowing that men and women do and will use intoxicating liquors, and will become intoxicated, and in that condition do business, make contracts, and commit crime.

Such being the case, it follows, of course, that these facts must be and are recognized by the courts, by whom our laws are not only administered, but mostly made, and it is to their mode of dealing with the question, and to the effect that intoxication has on contracts and crime, in a legal aspect, that I must confine my remarks to-night. I assume that it will not be disputed that intoxication is insanity, whether slight or otherwise, that so far as one's mind is disordered by the use of stimulants, he is to that extent insane; and it seems to be very generally understood that an insane person is irresponsible and legally incapable of making contracts, or of committing crime. That, it is true, is the general rule, but it is a rule to which there are exceptions, some of which I will endeavor to point out. And now, considering the subject of contracts and crime separately, let me say in advance that contracts between sane and insane persons, or contracts procured by the fraud of one party, are never void for that reason, but are only voidable at the option of the insane or de-

frauded party, when he becomes sane or capable of ratifying or repudiating it, or by his legal representatives. The sane party to such a contract can never take advantage of it. There are very few contracts that are ever absolutely void. A contract may, however, be such as is expressly prohibited by statute, or may on its face show such moral turpitude as to be absolutely void. But deeds, promissory notes, or contracts for the sale of property are not such, and it does not lie with the sane person to such a contract to say that the party he contracted with was insane or incapable of contracting. But to make a contract so far voidable that the intoxicated party may repudiate it afterwards, he must not only show that he was intoxicated when he made it, but that he was so deeply intoxicated as to have been unconscious or as not to have known what he did. In such a case it is generally difficult for him to do it, if his contract is a promissory note, or deed, or some paper to which he has signed his name, for a person so much intoxicated as not to know what he does, is usually unable to write his name, or to write it so as to have it resemble his usual signature. Yet some can, and do, do that. Verbal contracts for the sale or exchange of property, followed by an actual delivery, are more common and give rise to more difficulty. And the difficulty the intoxicated party usually has in all these cases, is in proving the facts, or in meeting the proof of the other party. A contract is rarely made by a sober man with one who is very drunk, unless the sober man intends to defraud the other, and a man who could so attempt to defraud or take advantage of the helplessness of another would be very likely to try to sustain his contract by swearing that the other party, if not sober, still was not so much intoxicated as not to understand what he was doing. He certainly would not admit, under oath or otherwise, that he had been knowingly taking advantage of an insane

man, and usually in such a case there are no witnesses to the transaction, except the sober man and his friends, who will rarely, if ever, in such a case swear that the intoxicated person was so much intoxicated as to be unable to transact business, or to understand what he was doing; and on the opinions of witnesses present such a case must rest, for we must bear in mind that intoxication is proved by the opinions of witnesses, and the witnesses need not be experts either. Any person is competent to give an opinion on seeing a person, hearing him talk (if he talks), and witnessing his actions, whether or not he is intoxicated, and such opinions are proper evidence. Of course, the unreasonableness of a contract made in such a case might be considered, and we can imagine other proper evidence of the fact of the intoxication, and its extent, but the usual evidence consists of the opinions of witnesses, and how widely they differ, and what absurd ideas they, some of them, have we all of us know; and it is not the opinions of witnesses only in such cases that make trouble, but the opinions of jurors are also to be considered. A witness here in New York some time ago, in testifying on the subject of lager-beer, did not know whether it was intoxicating or not. He said (as reported) that he drank one hundred and thirty-two glasses one day, and it did not make him drunk, yet he did not know what it might do, if a man should make a beast of himself.

By the testimony of such a man it would be difficult to prove any man so drunk as to be incapable of making a contract, or if on a jury, to find any contract void because one of the parties to it had been drinking to excess.

It will thus be seen that the difficulty is not so much in determining what state or condition caused by intoxicating liquors will make a contract void, as in determining the actual state or condition of the party at the time.

There is probably no question of fact arising in the

Courts so difficult to settle as that of a man's intoxication and its extent, and on no other questions will witnesses, in giving opinions based on the same facts or appearances, differ so widely.

I do not wish to be understood as saying that a contract might not be declared void because of the intoxication of the party making it, in a case where he is not so much intoxicated as to be oblivious or incapable of knowing what he is doing; but in such a case the intoxication must be produced or caused by the sober party, for the purpose of defrauding the other.

Yet in that case it would not be so much the intoxication of the party, as the fraud of the other party, of which the intoxication would be but part of the evidence.

Actual fraud will vitiate any contract. But it is not necessary to consider that question, but only how far a man's contracts are affected by intoxication *only*, or intoxication voluntarily produced.

If an intoxicated person has sense enough to know the value of property, and to reason and discuss the question, his contract for the purchase or sale of the property will be binding on him. If he indorses a note, or signs any other contract in such a state, his signature binds him.

And indeed, he would be bound to pay negotiable paper signed or indorsed by him, if transferred to an innocent bona-fide holder before maturity, no matter how much intoxicated he was when he signed or indorsed it, or whether he knew or did not know what he was doing, although he would not be liable in such a case to the original taker, or payee.

There is that exception in the case of commercial paper. The contrary was once or twice held in England a great many years ago, but those decisions were soon overruled, and the rule as I have stated it laid down, which has uniformly been adhered to there and in this country ever

since. So also a man is liable to pay for necessities purchased by him in a state of intoxication, no matter how much or how deeply intoxicated he is, or whether at the time of the purchase he knew what he was buying or not.

The law implies a promise to pay in such a case, whether any promise was in fact made or not.

In a case also where an intoxicated person purchases property of any kind which he retains, or uses after he becomes sober, the courts will give him no relief. He must return the property or consideration received by him the first opportunity or he will be held bound.

These exceptions should hardly be called exceptions to the rule, as in no case does the Court hold that a person in a state of unconsciousness, or one who does not know what he is doing, can make a contract. We all know that it takes two persons to make a contract, and that the minds of the contracting parties must meet, which cannot be the case if one of the parties has no contracting mind or memory, or is not in such a state as to be able to know what he is doing: but the Courts hold that the party seeking to take advantage of it, in a case where in justice and equity he ought not to, shall be precluded or estopped from proving or availing himself of the fact, and so it follows that the Courts, as in case of many other contracts (notably usurious contracts), hold parties bound by void contracts, or contracts never actually made, in cases where it is right and proper and necessary for the protection of the public that they should.

The question of the effect of intoxication often arises in case of wills made while in that condition, and in such cases there is usually more difficulty in the proof than in any others, for the reason that fraud or undue influence is so often used in those cases; the parties procuring the will to be made knowing that it will not see the light until the maker shall be dead and powerless to dispute it. The



actual effect of intoxication on a will is the same as on any contract. If the testator at the time of making a will knows enough to know what property he has, and to designate the objects of his bounty, the will will be good, whether he is drunk or sober, unless he is made drunk by some legatee or devisee, and so induced or influenced to make it. In such a case the fraud would invalidate the will. So if he should execute it while so completely intoxicated as not to understand what he is doing, it would be void, even if the intoxication was but a temporary case of intoxication, and voluntarily produced.

In criminal cases the rule in regard to the effect of temporary and voluntary intoxication is different, and a distinction between the responsibility of a person for acts done when temporarily and voluntarily intoxicated, and acts done while in a condition caused by previous, or long-continued intoxication is made; and although it is held that intoxication is insanity, and that an insane man is incapable of committing crime, yet, in disregard of the logical conclusion which should follow the statement of such a proposition, it is held that an intoxicated man, although insane, is responsible criminally for the doing of an act which would be criminal if done by a sane or sober man, and that the act is no less a crime because committed in that state, if his intoxication is temporary or voluntary: and that his intoxication is not only no defence, but tends to aggravate the offence.

In all cases of insanity, the fact of the person being insane when he commits the crime is a defence, no matter how he becomes so, whether by his own voluntary act or not; but in case of drunkenness the cause of the insanity is considered, and unless the person committing the crime has been drunk so long that his insane condition is the result of his long-continued inebriety, his intoxication is no excuse or defence.

In such a case, where he is so much affected as to have the delirium tremens, he is irresponsible whether he became such drunkard voluntarily or not. Yet even in that case his intoxication at the time of doing the act is no defence, but only his condition caused by the previous intoxication, or his condition after the intoxication has passed away. In principle the rulings of the Courts on the subject of intoxication in criminal cases, although such as the public good requires, seem nevertheless to be inconsistent and contradictory. Yet when we consider the reasons which the Courts in all past times have given for this seeming inconsistency, and uniformity of opinion among jurists on the subject of its necessity, we may well hesitate before questioning the propriety of their adopting a flexible rule for such cases.

Laws may be inconsistent and still be just, or in other words, in order that justice may be done, some rules must have exceptions, or must be such as may be departed from.

This law of criminal responsibility for acts done by drunken men is a part of the common or unwritten law, which is said to be "the accumulated wisdom of the world's gray fathers," and which, if not absolutely perfect, is still more likely to be just, and to meet the wants and requirements of the people, than laws made by the Legislature.

If a man is so far deprived of his reason by drinking intoxicating liquor as not to know what he does, and in that condition makes a contract, that contract is voidable, or not binding him, no matter whether he has been drunk five minutes or five years, or whether he got drunk purposely, or by the procurement of the other party.

In such a case the Courts look to the fact and not the cause.

But in case of the commission of a *crime* by the same

man, the Courts look to the cause, and if it is a case of temporary or voluntary intoxication, he is responsible and liable criminally for the act, even if he is so drunk as not to know what he is doing. So we see that in one case he is responsible although he is drunk, while in the other, he is irresponsible because he is drunk.

In most countries the responsibility and liability for acts done while intoxicated has been the subject of legislation. In Greece at one time laws were passed inflicting a double punishment for acts done by a drunken man, one for the offence, and one for being drunk.

The Roman law allowed proof of intoxication to exculpate a man, but at the same time made it a capital offence for a woman to commit a crime while in that state.

By the criminal code of Austria, intoxication was made an excuse or defence when not voluntarily induced, for the purpose of committing the crime. In Germany the law was the same some years ago, and I think is still.

In France it was at one time ordained that drunkenness should not in *any case* be a defence or an excuse for crime. Their subsequent code was silent on the subject, but the Courts held the same. In England the law is the same as here; neither in England nor in this State has it ever been the subject of legislative enactment, except that recently, *the law being well settled*, a provision or section was inserted in our new Penal Code, showing what it is, or declaring that to be law which was then, and had long been the unwritten law of this State on that subject. To that I will allude hereafter. As far back as 1548, we find it laid down by Plowden, a distinguished writer, jurist, and law reporter of those times, as the law of England, in these words:

"If a person that is drunk kills another, this shall be felony, and he shall be hanged for it; and yet he did it through ignorance, for when he was drunk he had no un-

derstanding nor memory ; but inasmuch as that ignorance was occasioned by his own act and folly, and he might have avoided it, he shall not be privileged thereby."

And Lord Coke in the Institutes lays down the same doctrine, calling a drunkard a voluntary demon, and declaring that "whatever hurt or ill he doeth, his drunkenness doth aggravate it." And Lord Bacon, in his Maxims of the Law, dedicated to Queen Elizabeth, says, "If a madman commit a felony he shall not lose his life for it, because his infirmity came by the act of God; but if a drunken man commit a felony, he shall not be excused, because the imperfection came by his own default."

Sir Matthew Hale, in his Pleas of the Crown, written about two hundred years ago, and Blackstone in his Commentaries, written still later, assert the same doctrine.

We thus see that in all past times, in the jurisprudence of the most civilized nations, the governments and the Courts have refused to allow that one kind of insanity to be an excuse for crime, or a defence in a criminal prosecution, and have treated as criminal, offences committed by persons insane or deprived of understanding from such a cause. Our Courts, down to this day, adhere strictly to that rule.

In a leading case in our Court of Appeals, a few years ago, Judge Denio, in delivering the opinion of the Court, and endeavoring to make plain the law as settled in this State, says: "The rule which I have endeavored to explain assumes that one may be convicted of murder or any other crime, though his mind be reduced by drunkenness to a condition which would have called for an acquittal if the obliquity of mind had arisen from any other cause."

And in that case (the People against Rogers), and in every reported case since, this has been held to be the correct rule. Yet in that case, which is a controlling adjudication of the question, the judges refrained from saying

that drunkenness amounting to such total unconsciousness, or such as to make it impossible for the drunken man to *conceive a design*, would not be a defence, and purposely abstained from deciding it, on the ground that, although raised and presented by counsel, and by the charge of the judge in the Court below, the evidence did not warrant it, or present such a case, or make it necessary for them to pass upon that question; one of the judges saying: "We must lay out of view as inapplicable, the case of a person who had become insensible from intoxication and who was performing an act unaccompanied by volition"; it appearing, as the judges of the Court of Appeals viewed the evidence, that the mind and will of the prisoner, although perverted by intoxication, was not *annihilated* or *suspended*. Another judge in the same case, after saying that "no rule is more familiar than that intoxication is *never* an excuse for crime," says: "Even when intent is a necessary ingredient, so long as the offender is capable of *conceiving a design*, he will be presumed, in the absence of proof to the contrary, to have intended the natural consequence of his own act. Thus if a man without provocation shoot another or cleave him down with an axe, no degree of intoxication *short of that which shows that he was at the time utterly incapable of acting from motive, will shield him from conviction.*"

From this it is to be inferred that if the drunken man is *insensible* so that his mind and will are for the time being *annihilated* or *suspended*, and he is incapable of *conceiving a design*, or of *acting from motive*, he cannot be guilty of a crime.

This language does not exactly harmonize with the adjudications and declarations of the Courts running through all the books, and the only way to reconcile it, as it seems to me, is, to consider that a man so drunk as to be unable to conceive a design or to have motive must be so drunk



as to be physically incapable of committing a crime, or of doing an act which would otherwise be criminal. Yet that would hardly be reconciling it. It would rather show that the judges had been considering the consequences of doing an impossible thing.

In the same cases in which it is so emphatically declared that drunkenness is *never* in any case an excuse for crime, or a defence in a criminal prosecution, and that it never can have the effect of altering or reducing the grade of crime, they hold that evidence of intoxication is always admissible, for the purpose of showing whether or not the crime was committed in the heat of passion or with deliberate purpose.

In our own State, and in several other States of the Union, *premeditation* and *deliberation* are made material by statute in murder cases. It is what makes the distinction between murder in the first and second degree, and determines the question whether the prisoner, if guilty, shall be hung or go to prison for life. To be murder in the first degree under our code as it now is, the killing must be with a *deliberate* and *predetermined* design to kill.

As the statute was before, it was sufficient only that the killing should have been *premeditated*. The difference does not seem to be great, yet our courts have held and settled the law under the statute as it was before, the code that drunkenness that overcomes the will and incapacitates from controlling the action of the mind is no excuse, and cannot affect the grade of the crime or be taken into consideration by a jury on the question of premeditation. Since that time our Penal Code has been passed, which contains this section or provision: "No act committed by a person while in a state of voluntary intoxication shall be deemed less criminal by reason of his having been in such condition. But whenever the actual existence of any particular purpose, motive, or intent is a necessary

element to constitute a particular species or degree of crime, the jury may take into consideration the fact that the accused was intoxicated at the time in determining the *purpose, motive, or intent* with which he committed the act."

The Supreme Court of the United States has recently decided in a case arising under a statute exactly like this, that evidence of intoxication at the time of committing the act is admissible and competent for the consideration of the jury in determining whether the accused at the time of the commission of the crime was in such a condition of mind by reason of drunkenness as to be capable of *deliberate premeditation*.

Whether the courts in this State will so hold when the question arises, as it necessarily will arise, is uncertain. They have already decided that it cannot be taken into consideration on the question of *premeditation*, or, in other words, that a want of premeditation cannot be inferred from the fact that the prisoner was intoxicated when he committed the crime.

Whether, when the question properly arises, it will be held in this State to be proper to take into consideration the question of intoxication in determining whether or not the crime was committed with *deliberation* is uncertain.

The word "deliberate" is a new word in our statute defining murder, and in the case in the Court of Appeals in which the Court held that intoxication could not be considered on the question of premeditation, or as evidence of a want of premeditation, the judge at the trial had charged the jury that it *might* be taken into consideration by them as showing or tending to show a want of deliberation, which left the prisoner nothing to complain of or except to on that subject; and the verdict being against him notwithstanding that charge, the question on the appeal did not arise. But, if in the court below, the charge

had been otherwise, and the question had thus come before the Court of Appeals, judging from the reluctance of the Court to hold *any* degree of intoxication to be an excuse or defence in *any* case of crime, it is highly probable that they would have held that a want of deliberation could not thus be proved. One of the judges, however, expressed his doubts whether proof of the intoxication of the prisoner at the time of committing the crime was not proper for the purpose of showing a want of premeditation, as well as a want of deliberation, but his doubts, or his views if he differed from the other judges, did not prevail.

Our Penal Code before mentioned does not in *terms* provide that the jury may take into consideration the intoxicated condition of the prisoner for the purpose of determining whether or not the act was done with *deliberation* or *premeditation*, but only for "the purpose of determining the *purpose, motive, or intent* with which he committed the act," and in my opinion does not materially change the law, if it can be said to change or add to it at all. The evidence of the intoxicated condition of the prisoner at the time of committing a crime was admissible before as well as since the code, and if his purpose, motive, or intent can now be affected or determined by, or may now be dependent upon his intoxication, it was the same before.

His nature, or the action or effect of alcohol upon the brain or mind is not changed by the code; and the purpose, motive, or design of a prisoner was as material before the code as now. A man may act from a motive, purpose, or design conceived on the instant, and without *any* previous premeditation or deliberation, and his intoxicated condition may be the cause of, or explain the act, showing it to have been accidental or purposely done. In doing an act, he may have a purpose, motive, or design without having deliberated upon it or predetermined it, but he cannot deliberate upon or predetermine

it without having a purpose, motive, and design, and so the conclusion must be that where deliberation or predetermination is shown, it follows that he had a purpose, motive, and design, and it can make no difference whether the prisoner was drunk or sober. The Supreme Court of the United States held in the case before mentioned and the courts in Massachusetts have decided that a want of premeditation may be inferred from the intoxicated condition of the prisoner. Yet, in view of what the courts in this State have repeatedly decided, they cannot consistently so hold, having thoroughly settled the law that proof of intoxication, although always admissible, cannot have the effect of reducing the grade of the crime committed, or be a defence in *any* case, or have any effect beneficial to the prisoner if he is capable of committing a crime at all.

If it cannot alter or reduce the grade of the offence, or be a defence in any case, it is difficult to see what good the proof can ever do, or why it is received. If it is admissible, as the courts say, to prove that the crime was committed in the heat of passion, it is impossible to see how the proof can ever avail the prisoner, or why he should ask to have it received, in view of the fact that intoxication *aggravates the offence*.

The only way, as it seems to me, to explain what seems like inconsistency is to understand that the courts make, as they seem unconsciously to make, a distinction between criminal acts of violence endangering persons and property and other crimes, such as larceny, forgery, counterfeiting, etc.

We can easily see how a person without any criminal intent might pass counterfeit money, or carry off another's goods, or sign or give a check for property purchased without having any funds to meet it, and the absence of a criminal intent might be inferred from his intoxicated con-

dition. But in the other classes of crime, such as arson, or acts of violence endangering life or limb, the rule is made to yield to the necessities of the case, and is so far departed from, for the protection and safety of society. In explanation of the rule in cases of crime by violence, or rather, as it seems, in justifying the departure from the ordinary rule in cases of such crimes committed by persons deprived of reason, Judge Denio, in delivering the opinion of the Court of Appeals in the case of the People vs. Rogers, before alluded to, says :

“In the forum of conscience there is, no doubt, considerable difference between a murder deliberately planned and executed by a person of unclouded intellect and the reckless taking of life by one infuriated by intoxication; but human laws are based upon considerations of policy, and look rather to the maintenance of personal security and social order, than to an accurate discrimination as to the moral qualities of individual conduct. But there is in truth no injustice in holding a person responsible for his acts committed in a state of voluntary intoxication. It is a duty which every one owes to his fellow-men and to society, to say nothing of more solemn obligations, to preserve, so far as it lies in his own power, the inestimable gift of reason.

“If it is perverted or destroyed by fixed disease, though brought on by his own vices, the law holds him not accountable. But if by a voluntary act he temporarily casts off the restraints of reason and conscience, no wrong is done him if he is considered answerable for any injury which in that state he may do to others or to society.”

We thus see how in this State, as in the jurisprudence of every civilized nation, the rule that an insane man cannot commit, or be held responsible for, crime is departed from for the protection of society, in cases of acts done by persons in a state of voluntary intoxication, and although in



terms, the Courts, in determining responsibility, do not claim to make any distinction between acts of violence or injury to the person, and other crimes, yet in fact and in practice they do, the wants and necessities of society and the public good being in reality the power or moving force which so varies the rule and engrafts this exception on our laws.

In this State, and indeed in every State or nation where the common law prevails, the general laws are such as the people demand and require. Laws, even if passed by the Legislature, are of little or no account if they are not such as meet the wants and requirements of the people, and the omission of the Legislature to enact laws for the protection or security of persons or property, throws upon the Courts the burden of giving that protection as best they may; and their adjudications and the rules so established by them become law, or declarations of law, as binding as legislative enactments.

So our laws on the subject of intoxication, its legal effects and consequences, have been made, and are, I think, as nearly just as they can be, while the right of citizens to disorder their minds and become unreasoning maniacs is not only permitted, but secured to them by express legislation.

The wrong, as it seems to me, is in allowing the present state of things to exist, in permitting or allowing citizens to voluntarily make themselves maniacs, and in that condition go at large in the community.

The opinion is often expressed by persons who have given the subject careful consideration, that if all the insane persons in the State should be allowed to go at large there would not be as much crime committed by them as is committed by persons in a state of intoxication, while entirely unrestrained. I will not hazard an opinion on that question myself, at least I will not express the opinion

that I have, as it is one about which, if people differ at all, they differ very widely. It is sufficient that people insane or crazed by drink, and dangerous to friend and foe alike, do roam the streets, and are allowed to mingle with the mass of citizens.

Yet who would for a moment think of allowing the lunatics in our asylums to go free in community? The very first symptom of insanity in any other case is watched, and for the protection of the lunatic and of his family, and of citizens, he is immediately restrained. If such lunatics like the drunkard should voluntarily or wilfully make themselves insane, does any one doubt that such acts would be made criminal, and prevented?

Actual crime, for which the perpetrator is punished, is but a small part of the injury caused by the drinking of intoxicating liquors, yet it is said that at least 90 per cent of all the crime committed in the country is caused directly or indirectly by the drinking of intoxicating liquors. If that is so—and the evidence on the subject leaves little or no room for doubt—is it not well worthy of consideration whether we should not, by positive legislation, absolutely restrain the drunkard as we would any other offender who endangers the peace or safety of the public, and absolutely prevent that kind of insanity?

In relation to all other acts of the citizen dangerous to life or property, the public demand, and the Legislature therefore is prompt to pass, restraining and prohibitory laws, and making their violation criminal and punishable as such.

For the safety and protection of the public, extraordinary powers are given to boards of health in every county in the State, and quarantine laws, and laws forbidding the keeping of gunpowder in cities are passed and enforced. The carrying of concealed weapons is made unlawful, and the sale of poisonous drugs is forbidden, except under cir-

cumstances where naturally no injury can result; and a citizen with an infectious or contagious disease may for the protection of the public be taken from his home, and kept confined where he cannot endanger others.

Is there any good reason why one who makes himself insane by intoxicating liquors should have an exception made in his case, and he be allowed to go at large, or, what is worse, be alone with his family; liable at any moment to maim another, or, to destroy life or property? He is not only liable to do so, but, as we all know, such things are done every day, and will be repeated or continued until the remedy I have suggested, or some other adequate one, shall be applied.

But on this branch of the subject I will not enlarge, as it would be a slight departure from the subject on which I was invited to address you this evening. What I have stated as the legal effects and consequences of inebriety is but a statement of what the law is on the subject, and for the time being we must take the law as it is, whether it meets our approval or not; but my comments thereon, and the views I have expressed in regard to the evil and the remedy, may not meet your approval, and are fairly open to criticism; and you, having, as I have no doubt you all have, decided convictions on the subject of the use and abuse of intoxicating liquors, and the remedy for the evil, so far as it is an evil, I hope to hear an expression of your views, whatever they may be.

The discussion was opened by Mr. Avery, who sustained most of the propositions of the paper, and laid special stress on the fact that law did not encourage drunkenness by admitting that it entailed irresponsibility in criminal cases, while it discouraged fraud by protecting the drunkard against the consequences of his civil acts.

Dr. David Webster asked what was done in case a sober person was cheated, and it was proven; was not his property restored to him as well as in the case of the deceived drunkard?

Mr. Avery replied that his property would be restored to him, but not on the ground that he had been drunk when deprived of it.

Dr. Girdner said : The question of responsibility of intoxicated persons, and the proper way of dealing with them for criminal acts, has always been one of interest to me. Now a drunken man is as insane as men generally get to be ; rational conduct is no more to be expected from a man suffering from thorough alcoholic intoxication than if he suffers from any other recognized form of insanity, and if we push this comparison into the field of pathology, we find congestion of the brain and membranes to be the only observable lesion in alcoholism, and this is also true of nearly every form of insanity. Intoxication from alcohol must be classed as a form of insanity, and all conduct of a drunken person should be considered by the law as the conduct of an insane person, and the same rules of justice apply to his acts, *per se*, as to the acts of a person suffering from general paralysis. The question, When is a man drunk, or how drunk must he be to be insane ? has nothing to do with this discussion. Courts of justice must ask in each case of alleged insanity, "Is the person insane, and how insane is he?" And these questions can be answered by none but those who have made themselves expert by studying such cases. These same questions should be asked of competent witnesses (not policemen and detectives) in every instance where a person charged with a crime can show that he was under the influence of alcohol at the time. Was he drunk, and how drunk ? are the questions which experts should decide. The act for which every man should be punished, and for which he should always be severely dealt with, is the introduction of the substance into the system which he knows beforehand will make him insane.

Mr. Avery : In further answer to Dr. Webster's query, I would like to say that, quite aside from the question of intoxication, certain principles are laid down in law regarding grounds for setting aside contracts, such are fraud and false representations. It is not necessary to enter into these when a man has been intoxicated.

Dr. Harwood : I have always looked upon the question of the prevention of intoxication as one of the most important ones before us ; undoubtedly the majority of crimes of violence are in some way connected with alcoholic excesses. Yet, after all, we physicians must admit ourselves to be in a great quandary. On the one hand, alcohol is a great and important remedy ; on the other, such a danger to society. A calm review of the question will convince most of us, I think, that no good results have been

obtained by sweeping prohibitory laws. Where these are enacted, liquor is used as frequently, and, perhaps, in more dangerous forms, than where sold openly. As to the relation of drunkenness to criminal law, I believe, irrespective of all abstract considerations, that the drunkard should be punished to protect society. Where, however, the question of intoxication arises, as a matter requiring proof, I believe the testimony of laymen amounts to very little unless the case is very clear.

Dr. Webster: I believe that the law already provides for the care of drunken and disorderly persons, and doubt whether it would be good law to provide that drunkards not disorderly should be imprisoned the same as the harmless insane. Both kinds may be safely allowed to go at large, although it is difficult to draw the line. The majority of Americans drink more or less, and it would be ridiculous to attempt to take them all into custody as much so as to turn all those who use tobacco out of church.

Dr. Spitzka: I think, with those who have spoken, that drunkenness in its various degrees is far too widely spread to recognize it as an absolute excuse for crime. I believe, however, that the questions of motive, premeditation, and deliberation should be taken into account as well with a drunken man as with a sober man, and differ considerably on this head from certain of our criminal judges who, turning to the jury, say complacently: "I usually punish the drunken offender more severely than the sober one, for he merits punishment, first for being drunk, and then for his crime." Our law is not at all consistent if it recognizes this principle—to call it so for argument—for it excuses the deeds committed by persons suffering from *delirium tremens*, who certainly must have been guilty of repeated acts of drunkenness to arrive at that condition. Whatever may be said on this head, it is certain that our law-makers failed to take into account the fundamental difference between the drunkard from habit and the dipsomaniac, in whom there is a periodically recurring irresistible impulse to indulge in alcoholic excesses. The latter is the victim, as far as we can speak of disease of the brain as the basis of insanity, of a brain disorder. His excesses are merely symptomatic of that disorder, and not toxicological phenomena alone. As to the admissibility of lay evidence on intoxication, I presume it is very much as with the question of lay evidence in matters of insanity. The laity are allowed to say whether the conduct of a given person impressed them as rational or irrational, and in this indirect way a non-expert conclusion can be brought



before a court. Probably the same would apply to the conclusion of a layman with regard to the sobriety or drunkenness of a given subject at a given time. How valuable this evidence is can be gleaned from the frequency with which persons suffering from nephritic coma, concussion, and apoplexy are thrown into prison cells as drunk, by policemen who, one would suppose, should have gained a little more than the average lay knowledge of drunkenness and its phenomena from frequent and, indeed, daily contact with drunken persons.

Dr. C. S. Wood: I would like to emphasize some of Dr. Spitzka's remarks. There ought by all means to be a discrimination by law as to different classes and kinds of intoxication. There are men who are drunkards by heredity. We may at least ask that judges be allowed greater discretion with regard to these cases than they seem to possess or exercise.

Mr. Avery: I have just been asking myself the question whether a person getting drunk for the first time should be treated like the man who gets drunk many times, and finally commits a crime?

Mr. Benn closed the discussion as follows: I have, perhaps, been misunderstood somewhat when endeavoring to state the law as it is, as indorsing everything that the law says. This was certainly not my intent. In regard to expert testimony in cases of drunkenness, the Court of Appeals decided that the opinion of anybody is admissible.

Courts undoubtedly do make a wide distinction between long-continued intoxication and its effects, and temporary voluntary intoxication. If man suffers permanently from long-continued intoxication, the law declares him irresponsible.

My private opinion is, that if a man is insane, he is not responsible for his acts, and should not be held responsible for crime. Courts define intoxication as insanity, but declare that while insanity excuses crime, yet it does not excuse the crimes resulting from that particular kind of insanity.

As to the legal effect of intoxication in regard to life insurance policies, this a question not in point, as the policy itself embodies a contract, and provides for the consequences of subsequently contracted habits of intoxication.

Under the head of new and unfinished business, it was moved by Mr. Avery and seconded that "the President appoint a committee of five to receive and propose amendments to the By-laws, and to report on such at the November meeting of the Society. The Chairman declared the motion out of order as being contrary

to the provision of the by-laws. An appeal was taken from this decision and after much discussion a vote was taken, which sustained the appeal. The original motion of Mr. Avery was then put and carried, and the Society, on motion, adjourned.

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*Eighth Regular Meeting, October 10th, 1883.*

The eighth regular meeting of the Society of Medical Jurisprudence and State Medicine was held on Wednesday Evening, October 10th, the President, Honorable Wm. Barnes, being in the chair, and the meeting being called to order at a quarter-past eight. The minutes were then read by Dr. E. C. Spitzka, in the absence of the Secretary, and approved.

The trustees then reported through their chairman the following: 1st, That on account of the reception to Lord Coleridge by the State Bar Association, being held on Thursday, October 11th, the Board of Trustees had decided to announce the regular meeting of the Society as taking place on October 10th. 2d, That they recommend to the Society the acceptance of the published proceedings, as reprinted from the AMERICAN JOURNAL OF NEUROLOGY AND PSYCHIATRY. 3d, That the next meeting of the Board of Trustees would be held at the office of Mr. E. H. Benn, 206 Broadway, at 2 P.M.

The paper of the evening, entitled "Report on Progress in Medical Jurisprudence" during the past two years, was then read by the Secretary *pro tem.* in the absence of the author.

## REPORT ON MEDICO-LEGAL PROGRESS IN EUROPE AND AMERICA FOR THE YEARS 1882 AND 1883.

BY THE SECRETARY.

There is a curious contrast between the Anglo-Saxon countries and other lands, as regards the cultivation of the field of legal medicine. In France, Germany, and Italy, there are successful and active societies including in their ranks the leaders of both the medical and legal professions. In England there are none such, and in America the history of their growth is not as yet a theme for expatiation. On the continent there are published a number of journals of the highest literary and scientific excellence,

specially devoted to medico-legal topics, and in more than one European capital, well-equipped medico-legal laboratories are added to the universities. Where is a medico-legal laboratory to be found either in England or America?

Evidently the fundamental difference between the spirit of the Roman and the English Common Law, as far as medico-legal topics are concerned, is the remote cause of the high cultivation which is given to medical jurisprudence in these lands whose laws are based on the Roman law, and the neglect to which it has been persistently treated, in those whose laws are the outgrowth of the common law of England. There is something, too, in the character of the races, which may in part explain the difference in their manner of regarding the mingled issues of science and law. The continental citizen is accustomed to the guidance of a paternal government, which takes care of his roads, houses, cattle and health, and in fact frequently saves him the trouble of thinking for himself on any topic; while the Anglo-Saxon, as the published opinions of more than one eminent judge, the verdicts of juries, and the editorial expressions in the daily journals prove, is a born expert on every possible subject, and requires neither ordinances, laboratories, lectures, nor expert evidence to enlighten him. It cannot be said that this independent, self-asserting tendency is without its good features, even in a field which is pre-eminently the property of thorough scientific thinkers. The spirit of investigation is fostered by contradiction, and science is apt to gain more than it loses by continual attrition with public and lay opinion. But what ultimate benefit medico-legal science is to derive from such attrition, is shrouded in the uncertainty of the future. We who have to deal with the present, are compelled to acknowledge that the history of the progress of medical jurisprudence, during

the past two years, is almost exclusively continental, a fact which has seemed to your reporter to necessitate this preliminary explanation!

Your reporter has also deemed it desirable to make the progress in forensic psychology the subject of a separate report. This subject is so vast that it cannot be dealt with in a single chapter, its consideration is well worthy the time of a separate meeting, and it will therefore not be taken up in the present communication.

With regard to the subject of *malpractice*, but few novel contributions have been made. Of these the most interesting is one by Kornfeld, relating to the death of a vigorous man in the prime of life, in consequence of the application of caustics to a nasal polypus. It appears that the patient had suffered from this ordinarily benign affection about nine months, went to a quack, and that the latter had repeatedly applied a nostrum (externally), which, as the subsequent judicial procedure revealed, was composed of twenty-one parts of caustic soda, fifty parts of carbonate of soda, and twenty-nine parts of ferruginous clay. He was taken ill seven days later, and after a regular physician determined his illness to be an inflammation of the brain membranes, died. The autopsy showed that the polypus had undergone purulent disorganization, and sinuses containing pus could be traced through the root pedicle of the polypus to the cribriform plate of the ethmoid. The entire brain surface showed purulent inflammation, most of the pus being collected over the ethmoid plate. There was not the slightest indication of any other disease, nor did the brain reveal anything that did not confirm the view that its present diseased condition was due to the treatment of the polypus. Of the five experts who gave an opinion, all were agreed that the meningitis was to be so attributed, four of them regarding it as a direct result, and one as a remote sequence. The one

who believed it to be an indirect result suspected the meningitis to be the result of septic absorption of the ulcerating surface of the polypus, while the others maintained a transmission of inflammation by contiguity. The defence maintained, and the court held that the accused charlatan had acted in good faith, having previously witnessed good results from his method of treatment, as was testified to have been the case by a number of lay witnesses. Under this curious ruling he went unpunished.

The subject of poisoning by overdoses of opium has recently attained a painful interest in our own community. It may be recollected how grossly the imperfections of our coroner's "system," or rather "lack of system," were made manifest in this connection, and hence a brief synopsis of an able paper by Emmert on a similar case may not be out of place here. It seems that a physician treating a child aged ten months for bronchitis and catarrhal conjunctivitis, saw fit to prescribe two mixtures, one for external use and the other for internal use. The external application, intended for the eye trouble, contained extract of opium and sulphate of zinc; the remedy for internal use was a mixture commonly used in cases of bronchitis. The druggist, as in similar cases which recently occurred in our midst, was the agent of destruction; he mixed the labels up, and pasted the direction "a teaspoonful every two hours" on the bottle containing the eye-water. The following questions were given to the expert, by the investigating judge: 1st. Is the quantity of opium and zinc, presumably taken by the child K., sufficient to produce the death of a healthy child ten months old? 2d. Have the medicinal substances administered to the said child produced death alone, or have they only precipitated a demise, unavoidable by reason of its previous disease? It being shown that the child had received the equivalent of a grain of the extract of opium within twelve hours, and the



symptoms of opium poisoning being so distinctive that the attending physician, having his attention directed thereto, instituted an examination of the bottles and their contents, it was replied that the death of the child must be attributed to the opium. It was admitted that the effect of the drug might have been facilitated by the febrile affection, the impeded respiration, and the resulting enfeeblement of the child; but it was denied that, if these elements had been absent, the opium would have been incompetent to produce a fatal result. The druggist was arrested and prosecuted for criminal neglect. The defence claimed that, as no autopsy nor chemical examinations of the body had been made, proof of the poisoning was faulty. The defence was rebutted by the experts in the following lucid propositions: 1st. It is proven that two prescriptions were filled in the said drug store, given for the child K., aged ten months, one being prescribed for a catarrhal affection and the other for an inflammation of the eye, the latter containing opium. 2d. That the bottles containing the mixtures, put up in accordance with the aforesaid prescriptions, were confounded, and so labelled that the one intended for external use was directed to be used internally in the dose of a teaspoonful every two hours. 3d. That the child K. had received several teaspoonfuls of the medicine containing opium. 4th. That the said child had, prior to the administration of that drug only manifested signs of a catarrhal affection of the chest and no symptoms of any brain affection. 5th. That but a short time after the ingestion of the drug, the characteristic signs of opium poisoning appeared. 6th. That these signs increased until the death of the child, which occurred twelve hours after the administration of the first teaspoonful. 7th. That the amount of opium administered was, according to the unanimous testimony of all concerned, and the chemical examination of the mixture remaining in

the bottle, a poisonous dose for a child of the age of the one in question. With regard to the omission of an autopsy, it was replied that the signs of opium, as of certain other poisonings, were so characteristic that they did not require the doubtful support of an autopsy, and the necessity for a chemical examination of the body was repudiated, inasmuch as it was admitted that the child had received a certain quantity of a given drug, the chemical examination of whose remaining portion proved it to have been a poison.

There is a kind of malpractice, rarely discussed under that name, but which really is more dangerous and far-reaching than the crimes of omission and commission of careless and ignorant individuals. It may be aptly styled governmental malpractice, and was appropriately stigmatized before the English parliament last year by Dr. Farquharson. He said that patent medicines were within the section under which it was necessary to label everything containing poison; but the provision was neglected. There were patent medicines that contained virulent poisons and some more than one, with the occasional result, perhaps, that antagonistic poisons neutralized each other. One of the most dangerous compounds was an "essence of linseed" containing a large quantity of morphia, from the use of which painful cases of poisoning had occurred. An established druggist had something to lose by negligence; but these medicines were sold by booksellers and grocers who had not the same sense of responsibility. The anomalous state of the law was illustrated by the fact that the pharmaceutical solutions of chloral could not be sold except by registered chemists, while a patent medicine containing a solution of double the strength was freely sold by grocers and others. It is seen that in England the "soothing-syrup" abuse has a fair prospect of being done

away with, after which we may hope that our law-givers may also take this matter in hand.

The subject of bodily injuries with relation to claims for compensation is nearly allied to that of malpractice. Of the various kinds of injury, those resulting from railway collision to-day claim attention most prominently. The reaction against the views announced by Erichsen, under which it is alleged that railway companies have been extensively mulcted by simulating, hysterical and hypochondriacal patients, is signalized by a treatise from the pen of Herbert W. Page. The writer, having himself been physician to one of the great English railways for many years, might be suspected of undue leaning to the side opposed to the claims of Mr. Erichsen. But his work is singularly impartial and undoubtedly marks a turning point in the history of litigation for "railway-spine." A very good picture of such a litigation is given by Dr. Güntz, a German physician. This physician was requested by one of the higher courts to report whether a certain railway employee was either wholly, partially, or not incapacitated from work. It appears that this employee was in a railway van at the time of a collision. The injured man claimed that the collision was severe; he was contradicted by the other employees present at the time. In weighing this evidence, the court took into account the fact that both parties were interested, the other employees being dependent on the good-will of the railroad corporation on behalf of which they testified, and also were in part actually responsible for the collision. At all events, the subject examined had been thrown against the inside of the van with such violence that he sustained a bleeding wound an inch and one-half long over the right eyebrow. He fell senseless, and on recovering consciousness, which was in about ten minutes, he had vomiting. He felt quite well subsequently while travelling to the end of his contemplated

trip ; but on returning had severe headache, scintillation before the eyes, and felt ill generally. He consequently reported to the railway-physician, who certified to the existence of the wound, of dizziness and disturbance of sight, the certificate being dated January 29th, 1877. Since then, H., the claimant, alleges that he has become much worse, that irritability developed, insomnia supervened, that his sexual power as well as his memory had diminished, and that pains had come on in the lower limbs. He at first wished to return to his employment, asking to be assigned to short trips, but the railway-physician declined to pronounce him fit for duty.

Curiously enough, this same physician, on a subsequent occasion, denied over his signature that H. was either in whole or in part unfit for work, maintaining that he was just as good in this respect as he had ever been. At the hearing, he testified to the existence of other symptoms not yet named, such as trembling and weakness of the limbs ; but attributed this to old age. Unfortunately for this theory of the railway doctor, the patient had not passed his forty-fifth year. The physician appointed by the Court found beginning atrophy of the optic nerves, the hearing impaired, and certain other physical signs, these being of a kind commonly found in general paralysis of the insane. With this there was general mental failure and a deep emotional change. He concluded that, using the railway physician's first certificates as a basis, there could be no question that the patient had lost considerable ground since it had been granted. He rebutted the claim of the railway physician that the claimant's mental dulness was natural to him, as his duties, which had been satisfactorily performed before the accident, were partly of a mental kind, and could not have been carried on if he had then been in his present condition. It had also been claimed that, as the more serious symptoms had not shown themselves

until a considerable period had elapsed after the accident, they could not be due to the latter. This was declared erroneous, as it is a well-known fact that the initial signs of paralytic dementia and similar affections are often very subtle and quite imperceptible, unless a careful examination be made. Besides, the statistics of Schlager show that of forty-nine cases of insanity resulting from head injuries, only nineteen developed within a year after the injury, in many much later, and in four cases after more than ten years had elapsed. As there could be no question that the claimant had sustained a concussion of the brain, as concussion of the brain produces vaso-motor disturbance of a character analogous to that observed in the earlier periods of paralytic dementia, as paralytic dementia has been actually recorded as following concussion, and finally, as none of the other known causes of that disease could be discovered in the claimant, the reporter concluded that his disease was due to the injury received, and that it incapacitated him from work, justifying his receiving a pension from the company.

The intricate and debatable issues involved in the study of concussion of the nervous system are being gradually cleared up by the reports of carefully conducted autopsies. Schlier reports the case of a man of thirty who had been knocked down and kicked on the head by persons wearing heavy boots. The patient died ten days thereafter, and a bloody extravasation was found between the dura mater and the skull, as well as over the brain itself, the bloody mass being confined to the left side. The curious feature of this case was that the patient died suddenly, having been during his illness completely conscious and complaining merely of constant headache. The characteristic symptoms of brain pressure were absent.

An interesting contribution to the question of sudden death is made in the same bimonthly periodical from which



we shall have so much to cite, "*Friederich's Blätter*" for February, 1883. It appears that the body of a child was found dead in the cradle by its mother apparently suffocated. The visiting physician declined to give a death certificate owing to the presence of suspicious-looking spots of an irregular shape, partly red and partly brown in color, found on the inside of the thighs. Nowhere did these spots show any indication of having been produced in the living body, and the expert who made a thorough examination discovered the disgusting fact that they were due to the attacks of countless roaches on the dead body, a contingency which is not impossible in certain of our tenements. A post-mortem revealed the existence of spasm of the glottis, and the report was made that death had suddenly occurred by such spasm in connection with a convulsion. The likelihood of this occurrence was augmented by the fact that the skull of the child presented that form of defective ossification known as *craniotabes*, with which convulsions are not uncommon.

Considerable discussion has been recently held on the subject of the signs characterizing death by suffocation. A valuable contribution was made by Dr. Leuff in a paper on the post-mortem appearances of the murderer Walsh, executed in Brooklyn. It is the more valuable as the examination was made within half an hour after the culprit was declared dead. Friedberg has published a series of post-mortem examinations, which are models worthy of being followed everywhere, and which would doubtless prove of great use to our Deputy Coroners. The point of particular interest to which he calls attention is the condition of the carotid artery in persons hung or garotted. He arrives at the following conclusions: 1, Attempts at strangling may produce extravasation of blood into the walls of the carotid artery with or without rupture of the internal coat. This results only when the carotid is

pressed sufficiently to tear its own nutrients. Hence this sign is not constant. Where no rope-mark or other sign of pressure of the neck is found, the presence of an extravasation into the walls of the carotid becomes an exceedingly valuable indication that strangulation has occurred or has been attempted, because it is sometimes the only sign of such an attempt.

Death by strangulation, which is comparatively a common method of criminally disposing of the new-born, is rare in adults. The following case illustrates how profitable to the ends of justice the independent position of the Continental expert may be in the detection of foul play; A woman of thirty, who a few hours previously had been seen by her neighbors in apparently good health, was found dead seated against the wall on the floor of her apartment, her lower limbs extended, the arms pendent, her clothing and hair undisturbed. The face was somewhat livid, and a few drops of blood which had come from the nose were on her dress. A chair was standing near her, on which there was a scattered game of cards. The physician called in opened her collar, and noticed three impressions on the neck, arranged up and down. These impressions corresponded to the clasp of the collar. He opened a vein, but no blood flowed. The absence of injury, of disorder, and the other signs induced him to express an opinion that death was not due to violence, but to apoplexy. Her husband alleged that he had come home several times, finding the door locked, had finally gotten a locksmith to force it, and on entering the apartment with some additional witnesses, found his wife sitting in the position described. He declared that his wife was subject to fits, and believed that she had been consulting the cards in regard to investments in the lottery when surprised by the "apoplectic attack." The judicial authorities suspected a suicide, and ordered the experts 'o pay particular attention

to the question of poisoning. Among the signs found at the autopsy were bloody suffusion of the eye, ecchymotic spots on the mucous membrane of the mouth, collapse of the lung, injection of the great veins, fulness of the right side of the heart, and dark fluid blood in the brain sinuses. There were found also three excoriations on the left and one on the right side of the neck, which a closer examination revealed to be finger-marks. The chemical examination was altogether negative in its results, and the examiners reported that death had occurred in the apoplectic form of suffocation. This was a surprise to the authorities, but the husband was placed under arrest, as it was suspected from his story, combined with the fact that some one must have had placed the body of the victim in the peculiar position in which she was found, with the evident purpose of misleading the physician, and that he was that person. He was subjected to an examination by the medical men, who, from the fact that much frothy mucous, denoting a long agony, had been found in the trachea of the victim, and that she was a powerful woman, inferred that her assailant would show some marks of a struggle. Several scratch-marks were found on his hands, which he said had been produced by a dog. Other irregular recent scars on the thumb, resembling marks of a bite, were also found. On being spoken to about these, he said that for all he knew the dog had also bitten him. The inner surfaces of the thighs exhibited bruise-marks. When the prisoner's hands were measured, to see whether they corresponded to the impressions on the victim's throat, he showed much agitation and became very pale. In the evening he broke a pane of glass and attempted to bleed himself to death with the fragments. Prior to this the physicians had given the opinion that the marks on the prisoner's body were of such a character that they might have been the result of an encounter with

his wife, and that the marks on her throat might have been produced by his fingers. Just before the suicidal attempt, he wrote a confession of the murder on the seat of the water-closet, with a piece of plaster broken by him from the wall. He was convicted and executed. The examiner cited calls attention to a tragico-comical error which he fell into, and which might have vitiated the investigation. It so happened that two other female bodies had arrived at the dead-house of the Swiss Canton Berne together with the body of the murdered victim, and that he made a very thorough medico-legal examination of the wrong body before her personal identity was established. This is nearly as curious a picture as the one frequently presented in the Coroner's office in the good old days of yore, when the brains and viscera forgotten to be included with the sewed-up remnants of the person to whom they properly belonged, were crammed into some other perhaps more capacious abdomen, giving rise to the saying that many a one has left the Coroner's office with twice as much brain as he had when entering. This referred, however, only to the defunct inmates.

In a second case of strangulation by criminal hands, the cause of death was somewhat obscure. In addition to the signs pointing to suffocation, there was noted an unusual pallor of the parts ordinarily suffused with blood in death by suffocation, and there is some reason to believe with Zenker that death was due to shock produced by a blow on the abdomen, which had been so powerful as to cause hemorrhage into the pancreas.

It was recently stated before a society in this city that the signs of death by asphyxia are constant and invariable. This was in connection with the Savin Rock Mystery. The thorough pathologists of the Continent are not of this way of thinking. The so-called "lung floating test" in the case of new-born children is not always reliable, and

Schröder has shown that the lungs of children which have breathed and cried may be found void of air, and consequently sink. In these cases the function of respiration gradually fades away, more air escaping from the lung with each breathing act than finds its way thither. This combination of circumstances is supposed to have been present in a case described by a Bavarian physician, and the corroborative confession of the mother proved that the child, which had exhibited the pulmonary condition of children who are ordinarily supposed not to have breathed, was carried out into the garden in a living condition crying and breathing, and there died from neglect—a fact which led to her being sentenced to imprisonment for two years.

The progress made in the detection of poisons in the dead body is so strictly within the domain of the chemist that it is impossible to duly chronicle it without becoming over-technical. A remarkable test for small quantities of alkaloid poisons was suggested some time ago by Rossbach. Frogs, mice, and other small animals have long been used for the detection of such, and this investigator proceeded to refine matters still further by employing the microscopic animalculæ. An American observer, Rockey, failed to find this test reliable, and supplements his adverse report by the remarkable dictum that American animalculæ are much tougher and more obdurate to the action of poison than those on the other side of the water.

Some years ago, an Italian patho-chemist, Selmi, described bodies named ptomaines, which form spontaneously in the slowly decaying dead body, and have a similar action on small animals as strychnia and other poisons. The recognition of this fact is of the very highest importance to the medical jurist. The same observer was induced to extend his investigations to the domain of the living body, suspecting that in some cases poisonous



substances formed within the body were responsible for the death of the subject. In the urine of a paralytic patient, he found a substance resembling nicotine which was found to act as a spinal poison on animals. Two other Italian analysts, Paterno and Spica, found that substances resembling the poisonous ptomaines can be extracted from fresh animal tissues. Thus is the question of the demonstration of poisons administered with criminal intent yearly becoming more complicated. It is to be hoped that reliable differential methods will be devised, as in the case of the alcohol test for urine. It may be recollected that the ordinary test for alcohol was found to produce the so-called alcohol reaction in persons who had been total abstainers, and that, fortunately for those who might have been suspected of secret bacchanalian excesses, or of distilling alcohol within their own bodies, a distinguished French chemist discovered the same substance in the soil of this earth, and it was then demonstrated to be a different substance.

The condition of various parts of the dead body as indicating the length of time it has been buried or otherwise disposed of, is one of the important subjects studied at the continental laboratories. Little has been known of the uterus in this relation until Tamassia made it the subject of special inquiry. He found that the folds of the mucous membrane are recognizable for about seventy days after death; subsequently they become obliterated and the mucous membrane becomes detached and dissolved. He found that Caspar's statement that the uterus is the most resistant to decay of all soft organs is not accurate, as the liver resists decay twice as long. The uterus requires 100 days in the atmosphere, 115-120 days in water, and 140-150 days in the earth, to undergo complete dissolution.

A very decisive series of contributions to the much agitated question of vaccination is being continually made in

Europe. Facts speak louder than figures here, and seem to demonstrate the advantages of revaccination beyond the possibility of a quibble. It was thus found that a certain detachment of French troops in Langers, where revaccination was not practised, had small-pox cases at the rate of 222.6 in 10,000, while the German troops at Berlin, under similar circumstances, but revaccination being the practice, had but 5.8 to every 10,000. In a discussion of the Berlin Medical Society, the majority of the speakers, comprising such men as Guttman, Thilenius, and Boerner, maintained that the right of the government to decree compulsory vaccination was more unquestionable than the right to decree compulsory education, on the ground that an ignorant man's influence for evil does not extend far beyond his own person, and associates of his kind, while a non-vaccinated person may prove a source of danger to whole communities, without himself suffering from or betraying the existence of the dangerous agency which he may carry with him.

As regards the position of medical men in courts of law, but little change is to be recorded. We are evidently in a period of uncertainty probably preceding a transition to a better condition of things. As showing how little unity exists in this respect in the systems of practice in use in the various States, it may be noted that in a trial in a Western State it was stated that medical books could not be used in the courts in Indiana, Maine, Maryland, Massachusetts, Michigan, North Carolina, Rhode Island, Wisconsin, California, and New Hampshire. They can be used, however, in Iowa, Alabama, and probably a number of the remaining States. "The theory upon which the exclusion seems to be based is that the jury might be drawn away by the different theories presented in the books from the proper consideration of the facts relating to the death as given by the witnesses of the deed."

The question of the remuneration of medical witnesses is still a vexed one on both sides of the Atlantic, as numerous complaints in the correspondence column of the English medical journals and the following case from this side of the water show: "Dr. S. J. Brooks, of St. Johnsbury, having made a post-mortem examination of the body of a murdered man, was recently called upon at a trial to testify as to the cause of death. He refused to testify on the ground that he could not be compelled to testify as an expert without remuneration. Thereupon the judge committed the doctor to jail for contempt, but after a few hours' confinement he testified and was released. The other physicians who were present at the autopsy answered that they had formed no opinion as to the cause of death, thus avoiding a collision with the court." It is a question whether the doctor who was submitted to a sort of torture for having the courage to resist an unjust demand, or those who were frightened out of their opinions by his fate, were in the least enviable position.

The foregoing represents but a fragment of the history of progress in the field which this Society has undertaken to cultivate; but if the somewhat incongruous items in it should provoke fruitful discussion, or elicit more thorough researches on the part of other members of this body, its object will be fulfilled.

The thanks of the Society were, on motion, tendered the absent author, and Mr. Eller opened the discussion as follows: This paper or report is a humiliating reminder to us of our backwardness in medico-legal progress, and I hope a more favorable report with regard to the share of America in this work can be made next year. The paper describes very graphically the benefits derived from the excellent system of the European universities, with their appliances for medico-legal analysis and research. Here, it is true, we have, in some law schools, chairs of medical jurisprudence, but they are only a sort of appendage. What we need most of all, is the training of lawyers in medical jurisprudence, for the physician is usually compelled to, and does very often, familiarize himself

with at least the fundamental branches underlying it. The great trouble with lawyers is, their lack of interest; it is only when they have a certain kind of case to try that they think the subject worth looking up, and naturally lacking a solid foundation, confusion results. An important factor in the dissemination of the proper kind of knowledge are such societies as this, and another would be the making of earnest medico-legal studies a compulsory feature in our law schools. In connection with the difference between the Roman and Common Law mentioned in the paper, I may be permitted to refer to a paper which I read before the Medico-Legal Society, on the medical jurisprudence of the Romans, and in which I attempted to show that the germs of nearly all phases of our present medico-legal knowledge are to be found in Roman law.

Dr. Harwood: It struck me that, in referring to a case of opium poisoning, the reporter was not explicit enough in stating whether the directions were properly given in the first place. My attention has been called to more than one case in which very eminent men had been rather negligent in the matter of giving unmistakable directions, so important, particularly in the case of ignorant patients. Not only this, but medicines which have done service in one case, are often prescribed by the laity for friends whom they diagnose to suffer from such affections as the medicine was originally prescribed for, with oftentimes curious, if not serious results, and regarding which a careful attention to the matter of proper prescription will relieve the physician of any even implied responsibility.

Dr. Judson: There is but one point raised in this interesting report, regarding which I have personal knowledge; that is the one regarding compulsory medical testimony. A physician having been called to attend a man injured on a steamship, and litigation growing out of the case, he was subpoenaed. He obeyed, waited several hours, noticed that the counsel in the case had a little sparring, and was then informed that the case would not be tried on that day. He was subpoenaed again, and after again waiting, found that the case had been "settled" without his knowledge. Now what was the doctor to do in such a case? It was certainly a great hardship, the physician was treated not only without any consideration of any kind, but practically with contempt. I hope our legal friends will give us medical men some advice in the matter.

Mr. Benn: I would have said nothing regarding a paper of so technical and exhaustive a character as the one read, if it had not

been for the last speaker. There need be no difficulty on the part of the doctors in this State. While it has long been a question whether they could be compelled to attend without compensation other than that of the ordinary witness fee, it is now settled that they are entitled to compensation. With regard to the admission of medical works, it is not any or every work that can be read in court; weight is only given to the opinions contained therein, in so far as it is regarded as an authority generally. Books are not introduced as witnesses, but can be read in an argument.

Ex-Judge Hull: One important subject shadowed forth in the paper is the subject of quack medicines. Now this is an all-important matter. There are those sitting here to-night who, if they take hold of the matter in the right way, can do away with this injury and insult to the intelligence of mankind. This may seem a bold proposition, but I think it is a true one. Let physicians have a little more courage. So far all movements to suppress the sale of nostrums have failed because the physicians as a whole—esteem them though I may, and ashamed as I am to say it—are cowards. They cannot expect lawyers to take that interest which they themselves ought to take, as the former have not and cannot have the necessary knowledge. Twenty-five years ago, this subject was brought up in the legislature by a physician, who had left his profession to go into politics, and who afterwards became a member of Congress. He prepared a bill against the sale of nostrums under false pretences. The bill got as far as the third reading when all at once the opposition began. As he was a neighbor of mine, we had many conversations on the matter, and I was kept continually informed of its progress. His bill was a very fair one; it merely demanded that all proprietary medicines should contain on the label a list of the ingredients and their proportions. Of course, this proposal struck at the root of the evil, and the bill was defeated by the influences usually potent in our legislatures. Some of the members were bought over, some talked over, and others humbugged over—to do what? To expose their children and children's children to poisoning. I afterwards met one of the gentlemen who had been active in defeating the bill, and took occasion to ask him how he had succeeded. He said: Why, as soon as I saw that the bill was being pressed forward, I telegraphed to several prominent houses in various cities of the Union, and in a short time had \$300,000 placed at our disposal to defeat the bill!

It has been claimed that interference with the manufacture and



sale of nostrums is an interference with private rights. This is incorrect; it is merely a question of police regulation. A well-known gentleman, editor of a paper having a wide circulation, especially among our rural population, had a paper entitled "Sundry Humbugs." In this, he exposed all the swindles perpetrated on our country cousins, tinsel jewelry, "oroide" watches, and patent medicines. Among the humbugs exposed was a certain remedy called "Fo-ko-ta." Its "inventor" was a man with a "Philadelphia" diploma, and he claimed to have published, in fact, I believe, he really had published, a book. With his wonderful Japanese remedy "Fokota," or, as he pronounced it, "Fo-ko-tay," he claimed to be able to cure all diseases. The article criticising the medicine as a humbug also referred to the "Doctor's" work, entitled "The Infant Wonder," as a manual on the art of producing abortions. The result was a suit for libel, claiming damages to the amount of \$20,000. I tried the case, and compelled the plaintiff to take the stand to prove what the ingredients were. His counsel protested; but no less than four judges in this city have decided that such men can be compelled to testify. We obtained several of the dollar packages of "Fo-ko-ta," with a very nice picture on it, representing one Japanese talking to another, all looking as stupid as they possibly could look. I asked the plaintiff first what the contents were, and, pending an objection of the counsel, the court, although ruling that the plaintiff must answer, adjourned. The ruling was sustained by Judges Ingraham, Brady, and Barrett. The next question was whether he had ever been in Japan. Answer: No, sir. The next: Do you know anything about the Japanese language? Answer: No, sir. Question: Do you know what Fo-ko-ta means? Answer: You do not pronounce it right—it is Fo-ko-tay; it is a word I invented myself. I have had it analyzed, know all there is in it; it contains sudorific, diuretic. Here I interrupted him, and pulled out some herbs, asking him if he knew what they were. He did not know. I then told him that they were found in Fo-ko-ta, and were henbane, ginseng, and weeds that can be gathered in any churchyard, wheat, camphor (in invisible proportions), the whole not being the value of the fractional part of one cent. I had taken the precaution to have it all analyzed beforehand. Now, although this quack, who was not only a cheat, but, through his dirty treatise on abortion, a dangerous villain, was thoroughly exposed, and Mr. Judd gained a victory over him, do you know, gentleman, that not one paper in the city would notice the matter, because they did not wish to offend him, who

was an extensive advertiser in their papers; and Fo-ko-ta continued to flourish. Had it not been for the defeat of Fo-ko-ta in the libel suit referred to, we should have had a dozen others on our hands, among them being one threatened by the "Richau's Golden Remedies" man.

Mr. Livingston: I think the difference between the Anglo-Saxon and other countries is not alone due to the difference between the Roman and the common law, but also to the more patriarchal form of government in the continental lands. Whatever disadvantages such a system has in certain other directions, it is certain that in guaranteeing, as it were, permanency of appointment to scientific positions, the field of study is much better cultivated. This is not alone illustrated in the field of medical jurisprudence, but in numerous others, philology, for example.

Mr. Benn: I might have been misunderstood a moment ago in speaking of the privileged position of medical witnesses. This they enjoy only when called as expert witnesses; when called as ordinary witnesses to mere questions of fact, their position is the same as that of other witnesses.

It is true, as Mr. Hull says, that persons can be compelled to disclose the composition of nostrums. There was a case of this kind in which a balm of a thousand flowers was the contested object. The claim was made that its proprietor could not be compelled to disclose, on account of its being protected by a trade-mark. The court, however, stated that nostrums did not merit a trade-mark. I do not think that, even if nostrum manufacturers were compelled to publish the ingredients on the label, it would diminish quackery much. The public is bound to be deceived, and all you have to put on the bottle is "chloride of sodium" and "protoxide of hydrogen," and they will believe it a very learned affair.

Mr. Livingston: If an expert is subpoenaed, I think he will have to go to court, whether he testifies or no. I agree with Mr. Benn that he cannot be compelled to testify, but about his being required to obey the subpoena I think there can be little question.

Mr. Benn: If he is told at the time of service that his services will be required as an expert, he need not go.

Mr. Hull: I believe he must obey the subpoena, but when on the stand, he can decline to state opinions, and limit himself to facts.

Dr. Harwood: I believe we are bound by oath to attend to our patients before anything else, and that physicians, if they have

a patient in a dangerous condition to attend to, can claim exemption.

Dr. Spitzka: I am particularly unfortunate with regard to subpœnas, in cases where I do not wish to attend. There are always a number of papers on my writing desk, and I frequently do not find a subpœna, particularly when served through the intervention of the servant, until it is too late to attend. I have never experienced any evil consequences, and I would advise Dr. Judson to take the subpœna question as easy as possible. There are as a rule six adjournments to every trial day—in my experience—and if lawyers cannot get along without an important witness, they will condescend to wait for him.

The chair then announced the following Committee on By-Laws: Messrs. Eller, Moulton, Benn, and Drs. Birmingham and Henna. It was moved and seconded that the matter of publication of the proceedings be referred to the Board of Trustees with power to act. This motion was unanimously carried. After some discussion as to the scope of the committee on changes in the By-laws, the Society, on motion, adjourned.

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*Ninth Regular Meeting, November 8th, 1883.*

The ninth regular meeting of the Society of Medical Jurisprudence and State Medicine was held on Thursday evening, November 8th, 1883, at eight o'clock, the President being in the chair. After the minutes of the previous meeting had been read and adopted, the Committee on Amendments to the By-laws handed in a report of their work, read by their chairman, Mr. Eller, which contained a number of recommendations.<sup>1</sup> It was moved, seconded, and voted that the report be received, and that action thereon be postponed until the consideration of new and unfinished business should be in order.

The Board of Trustees then reported through their chairman as follows: The next meeting of the Board of Trustees will be held at the office of Dr. Jacobus, 212 West 53d Street, at three in the afternoon. The Board recommends for active membership, Emilio Del Pino, Esq., of the New York Bar. On motion the report of the Board of Trustees was adopted, and a ballot being taken, the candidate named was unanimously elected a member, 25 votes being cast.

Dr. Charles A. Leale then read the paper of the evening:

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<sup>1</sup> As these are detailed in the minutes of the following meeting, at which action was taken on them, they are here omitted.

## SUN-STROKE AND ITS MEDICO-LEGAL CONSIDERATIONS.

BY

CHARLES A. LEALE, M.D.

MR. PRESIDENT AND GENTLEMEN:—Our excessive summer heat and sun-stroke<sup>1</sup> with their terribly fatal effects are sources of so much alarm to many that a large proportion of our population desert New York City during the months of June, July, and August, and occasionally during the first two weeks of September. This, my experience teaches me, is unnecessary, if due precautions for safety are taken during the brief period of a combined total of not usually more than ten days, which includes the very heated terms of our average summer. Excluding this short time, New York City is one of the most charming and healthful resorts anywhere to be found, if the rules of hygiene are followed.

A continued residence in actual professional work during the entire heated terms of more than fifteen years has given me opportunities for the observation and treatment of a large number of those who have suffered from the effects of excessive heat, and enabled me to see the various results on those affected from the mild or ardent fever to the terrible coup de soleil or immediately fatal sun-stroke.

The danger in New York City from exposure to heat can in a very great degree be avoided if the results of experience be utilized, and as nearly all the deaths occur among those engaged in manual labor, either exposed to the direct rays of the mid-day sun or confined in over-

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<sup>1</sup> I adhere to the good old English name sun-stroke, in preference to other synonyms frequently used, viz. :—Insolation, heat apoplexy, heat stroke, siderialism, etc., but would continue in hospital and military practice the use of the name Insolation, on account of the justly great dread in the popular mind of the incurable results following sun-stroke.

heated and crowded factories, I have for years cautioned superintendents in charge of men to arrange for the discontinuance of all work for about seven, or at the most ten days each summer, and instruct the men during these few excessively hot days to breathe as pure an atmosphere as possible, avoid exercise in the sun, dress loosely and lightly, eat sparingly, and drink abundantly of oat-meal water flavored with a little ginger, to which also a little salt might be added.

No class of daily laborers need our sympathy more than those who for eight or ten hours of mid-day are engaged in the most arduous work, and no cruelty to man is greater than in the case of voluntary, willing, impetuous men who are seen hour after hour climbing ladders, heavily laden with brick and mortar for the mason above, and all the time exposed to a torrid sun. No general of an army would expose his men at such a time without great caution, nor even would the southern planter risk the lives of his black slaves. The Mongolian would not venture out without the protection of his sun-umbrella, nor the East Indian without his pith hat; but the natives of a cool isle in a Northern latitude may be seen in New York City at work, often bare-headed under a midsummer sun.

I have during the heat of the day passed through the streets of Naples and Rome in Italy and also of Savannah, Charleston, and Jacksonville in our Southern States, and found the streets almost as much deserted by man and beast as those of Pompei and Herculaneum. Yet I have known equally oppressive days in New York City when the laborer continued at his toil and all work progressed with unabated zeal. The professional man hard at his work, the journalist in the greatest excitement, the merchant in continual worry, until the exhausted nervous system gave way, and insanity or death was the result. In this intense struggle for existence, if man or beast dropped,



his place was quickly filled and the work continued uninterruptedly.

This reckless, persistent physical and mental effort I believe to be the cause why in New York City so many annually suffer. To ascertain the facts in regard to the dangerous consequences, a year ago, while studying this subject, I wrote to the Registrar of Vital Statistics of the New York Board of Health, seeking information in regard to the frequency of sun-strokes, and deaths from excessive heat. I received the following reply:

*Deaths from Sun-Stroke in the City of New York for the ten years ending December 31, 1881.*

DEATHS FROM SUN STROKE FOR THE YEAR ENDING

Dec. 31, 1872.	Dec. 31, 1873.	Dec. 31, 1874.	Dec. 31, 1875.	Dec. 31, 1876.	Dec. 31, 1877.	Dec. 31, 1878.	Dec. 31, 1879.	Dec. 31, 1880.	Dec. 31, 1881.
320	34	19	19	206	21	52	41	116	134

BUREAU OF VITAL STATISTICS, }  
NEW YORK, July 7th, 1882. }

*Charles A. Leale, M.D., 749 Fifth Avenue, New York.*

DEAR DOCTOR:—I respectfully inclose the number of deaths by sun-stroke in this city for the past ten years. The number of cases of sun-stroke are not reported to this Bureau. I do not know the number of cases and deaths from this cause in the United States for this period, and I do not think it can be ascertained, as there is no registration of deaths in a number of States.

Very respectfully yours,

JOHN T. NAGLE.

It will be seen by the preceding table so kindly furnished by Dr. Nagle that there were eleven more deaths from sun-stroke in 1872 than during the entire five years following. There were 320 for 1872, and only a total of 309 for the years 1873-4-5-6 and 1877. In the year 1872

the estimated population of New York City was one million.<sup>1</sup>

In the annual report of the Health Department of New York, of 1872, Dr. Charles P. Russel, the register of records for New York, states that "the remarkably high mortality of this quarter renders its history peculiarly interesting. Within the brief period of thirteen weeks 10,025 persons were cut off, 2,192 deaths more than in the summer quarter of 1871; the next most fatal having been that of 1866, when Asiatic cholera was present."

In the years that I have remained in New York City during the summer seasons, I have given many certificates where excessive heat was the direct cause of death. I can never forget the heat of July, 1872, when for day and night during nearly a month I went without my necessary rest, visiting the prostrated, and for my own protection returned to my shower bath three or four times daily.

From an extensive personal experience in cases both of sun-stroke and Asiatic cholera, I can assert that I much more dread the terrible violence and danger of the effects of excessive solar heat, and I believe they exceed even the ravages of that most fatal disease, Asiatic cholera, and that the continuance of a temperature of 110° Fah. would much more rapidly depopulate the earth. We know that the tendency of all plagues is to exhaust themselves, and at least leave a convalescent in a better state to withstand a new danger, but for those exposed to continued and excessive heat there is no escape, unless a lowering temperature averts the inevitable death.

In the general summary total of the sickness and mortality of our white troops during the entire term from May, 1861, to June 30th, 1866, in the list of diseases, there was a total of 3,864,670 cases, with 100,088 deaths. Of these

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<sup>1</sup> Report of the Board of Health, New York, 1872.

there were reported as sun-struck 6,617, with 261 deaths.<sup>1</sup>

During the war the colored troops had a total of 444-658 cases of sickness, with 18,873 deaths. Of these, 583 were sun-struck, 58 of whom died.<sup>2</sup>

We also find the discharges of white troops on surgeon's certificate of disability from May, 1861, to June 30th, 1866, to be 215,312, and of these only 242 were directly attributed to sun-stroke; whereas, we have recorded 3,872 from epilepsy, 819 from from insanity, and 2,838 from paralysis, all of which are among the well-recognized results of sun-strokes, and I believe that sun-stroke was probably one of the primary causes in many of these cases.<sup>3</sup>

For the sake of comparison we will also state that, in a total of 8,223 discharges of colored troops on surgeon's certificate of disability, from June 30th, 1863, to June 30th, 1866, only one (1) was recorded as due to sun-stroke (page 716), while we have 174 from epilepsy, 34 from insanity, and 69 from paralysis, besides other diseases of the nervous system also there enumerated.

The dread of sun-stroke is so great that the intelligent soldier would greatly prefer having his arm or leg lost in battle than to be stricken down by his most fearful enemy, the mid-day sun. In a large number of examinations made by me for the physical and mental disabilities of our soldiers as they passed through Washington at the end of the war, I cannot recall a single instance of complete recovery after sun-stroke, as in those who had thus suffered there were remaining signs of some cerebral or spinal lesion or irritation to mark the sufferer and indicate that his future life would necessarily be one of pain and anxious care.

Sir Joseph Fayer, in the transactions of the London In-

<sup>1</sup> Medical and Surgical History of the War of the Rebellion; Medical vol., Part I.

<sup>2</sup> Medical and Surgical History of the War of the Rebellion; Medical vol., Part I., p. 711.

<sup>3</sup> P. 614, Med. and Surg. Hist. of Rebellion, Part I., Medical vol.

ternational Medical Congress, states that out of a force of 57,810 European soldiers in India, in the year 1879, there were admitted to the hospital 274 from sun-stroke, and 58 from apoplexy; of these 116 died of sun-stroke, and 12 of apoplexy.

During our summers in New York City, and also especially at our shadeless seaside resorts, I have frequently seen children who have suffered from mild sun-stroke or thermic fever. This fever has by several writers been called ardent fever, on account of its intensity.

On July 1st, 1882, I saw in consultation with Dr. Mott, of Harlem, a boy aged four years, who on the preceding day had played for hours in the sun. He was in the delirious stage. The skin of the entire body was very red and congested; the finger drawn along the skin left a white mark which became red again as soon as the capillaries refilled. His eyes were congested, pupils small, and his temperature was  $106\frac{1}{2}^{\circ}$  Fah., the pulse being at times too rapid to be counted.

We kept him closely wrapped in cold, wet sheets, gave aconite until the irritability of the heart was diminished and the skin became soft and perspiration was established. Sodium bromide in ten-grain doses was given every half-hour until sleep was induced.

During the first six hours the boy's temperature was diminished by the wet sheets and frequent spongings. A cathartic quickly emptied his bowels. He recovered in less than a week without any unfavorable result, except that he has on several occasions since complained severely of headache whenever unduly exposed to the heat. This boy has a large, active brain, and is now, over a year afterward, a strong, intelligent child.

The military surgeon probably has the greatest opportunity to observe the effects of heat upon healthy men, and the medico-legal relations of sun-stroke never received

such positive evidence as during the London International Medical Congress. At that time, the president of the section on military surgery and medicine, Surgeon-General Professor Thomas Longmore, C.B., in response to Dr. Cherer's request that he should make some observations on the cases of sun-stroke, respecting which Professor Longmore had published a paper while in India, stated that the results of experience in this trying affection under almost every kind of exposure, and in all the chief parts of India, had been brought before the meeting by surgeons of the highest eminence in tropical diseases.

*Sun-stroke of Children.*—Many of the nervous diseases of children, I feel convinced, are originally caused by the exposure to the direct rays of the sun. I have seen the most fearful infantile convulsions, cerebral meningitis, and the highest ardent fever follow exposure to intense summer heat and light. I believe that, if the cause could be traced, a large number of the epileptic children of healthy parents would show that direct exposure to the rays of the sun was the original provoking cause of all nervous trouble.

Often have I seen children surrounded by the most lavish luxury, enrolled in lace, carried either in open carriages or in the arms of the nurse, looking directly at the bright mid-day sun, their only protection from it being a beautiful, expensive, open lace bonnet through which the rays of the heat and light readily passed to the head and the eyes of these helpless little ones.

Last summer, while returning from a fashionable sea-side resort, I witnessed the effects of intense light upon a beautiful babe carried in the arms of its father. The passage to the pier was crowded, and as the child rested its head on the shoulder of its parent, the sun shone directly into its eyes. I noticed almost instantly that at the beginning of the exposure the pupils of both eyes became



finely contracted to the size of a pin's head; nature, by this means, endeavored to protect the sensitive nervous system; but in a few seconds I saw the pupils rapidly dilate to their utmost, and then contract; this dilatation and contraction continuing in rapid succession; then the eyes became crossed, first inwardly, then outwardly. Fortunately, a shady place was soon reached, when the eyes resumed their normal position and appearance. The infant all this time remained motionless. These phenomena occurred within two minutes, and left no visible sign. The inevitable subsequent nervous state of that child could never be explained. I may add that I was at such a distance from the child that it was impossible for me in that short space of time to give the warning to the parents without calling aloud to them. This, considering the dangerous position of the crowd as we were landing from the steamer, would most probably have caused a panic in the surging mass of human beings.

I have often thought our excellent Society for the Prevention of Cruelty to Children could do no better work than to place active women on duty in all parks where children and their nurses congregate during the heat of summer, for the purpose of cautioning those in charge of the little ones of the great danger such exposure must cause. I contend that it is the absolute duty of all—man, woman, and child—to be the willing advisers against such dangers. It is the business and duty, and should be the pleasure, of all to protect the helpless whenever they see such awful dangers as the sun shining directly into the eyes of children unable to escape on account of their inability to creep or walk. They are more helpless than fowls of the air, or the fish in the waters, or the young of brute animals to seek that shade where rest only can be found.

Surgeon-General Fayrer, of the Indian army, tells us

that children suffer much less than adults, and that out of 8,993 children of the European regiments in India, there were 7 cases of sun-stroke, with 4 deaths, while in a corresponding period, among the 4,640 women belonging to the European regiments in India, there were 12 cases of sun-stroke and apoplexy, and of these 10 died.

My experience in New York City leads me to the opposite conclusion, and I believe that women and children equally exposed, the latter would be oftener affected, and the younger the subjects the more prone are they to be sun-struck. The delicate nervous organization of the infant is much less capable of resisting excessive heat, yet young babies are the most powerless to escape the direct rays of the sun.

I am convinced, from a large experience, that many cases of sun-stroke in the infant have never been recognized by the parents, the true facts being kept from the physician by the nurse. In such cases the resulting diseases have been attributed to heredity, and the conscience-stricken parent is led unjustly and incorrectly to trace the epilepsy or the chorea in his children to a disease he had long supposed to have been entirely eradicated from his system, and which we can positively assure him was so eradicated. I have under my observation children whose nervous diseases were caused by sun-stroke, who subsequently have had violent convulsions and inflammation of the brain or its coverings, commonly known as brain fever. When we consider the extremely delicate nerve cell, and how easily it is influenced and its nutrition perverted by heat, cold, concussion or contusion, we can readily understand how the apparently slight injuries of infantile life forever affect future usefulness.

I have for years closely examined the pupils of the eyes of young infants suspected of having been sun-struck: and when I have found the pupils permanently contracted to

the size of a pin's head, by reviewing their previous history and symptoms, I have been enabled to become frequently personally convinced of the cause of trouble.

Early cerebral meningitis, convulsions, etc., I am positive are causes of perverted nervous nutrition, and development of the delicate brain tissue and its coverings. These neurotic changes occurring in early life are often the factors which produce irritable tempers, life-long neuralgias, and which sometimes change the offspring of the good and industrious into criminals of every form.

I believe that this view of the subject argues against the theory of the hereditary influence of criminality. Physicians who have had much experience in our public institutions among children, can testify that the drunken parent has been known to let a little one remain for hours in a reeking, foul, offensive atmosphere, on its back, unprotected either from the heat or light of the sun.

During the five years that I had charge of the class of diseases of children, in one of our New York institutions for the gratuitous care of the sick poor, I did not record a single case of an infant being sun-struck, although during that period I diagnosticated the diseases of and prescribed for over 5,000 sick children under five years of age.

Statistics in regard to sunstroke in children I believe to be of very little value, as the speechless one can tell no tale of its cruel exposure by an unnatural heedless mother, or an ignorant or flirting nurse. The physician has frequently to contend with the lying tongue which would divert his mind from the true cause of trouble, while he himself can only diagnosticate, and he places in his certificate inflammation of the brain or its membranes, convulsions, paralysis, etc., or sudden death from unknown cause; in those instances where most probably the cause was sunstroke.

Where sun-stroke was the exciting cause of all trouble,

the child is rendered incapable of having even a slight fever or cutting a tooth without violent convulsions.

I have known the irritability of one such child to change completely the fortune and position of an entire family. Parents and guardians therefore cannot be too careful in protecting their little ones.

In regard to the subsequent effects of sun-stroke upon the adult, we have evidence from some of our most observing and philanthropic physicians who have been willing to devote time and means to benefit the race by disinterested medical investigations, and from them we have learned much.

Dr. Christie, late of Zanzibar, stated in the discussion in London on sun-stroke, that in a large number of cases, after an attack, the mental capacity is so far interfered with as to render a man quite unfit ever to return to a hot climate. In three or four cases Dr. Christie met with a remarkable growth of spicula of bone from the skull, with thickening and opacity of the membranes. In one case epileptiform convulsions, with complications of mania resulted.

Dr. Yandell of Louisville, Kentucky, in the excellent discussion on Surgeon-General Sir Joseph Fayrer's paper on sun-stroke, before referred to, stated that he did not remember to have seen a genuine sun-stroke from which the individual ever perfectly recovered—some twist, some evil remained; his physical strength, his mental force, his moral powers were lessened or altered.

One of the most painful sights that we were called upon to witness, at the end of the war after peace had been declared, was to see the thousands returning to their homes who had suffered from the effects of the heat while confined in southern prisons. These men were in most instances hopelessly incurable, and to many of them death would have been a blessed relief.

In April, 1874, I was requested to visit a patient in convulsions, who ten years previously had been sun-struck while standing on the battery in this city. I was then told that previous to the sun-stroke he had been an active prosperous business man, but subsequently had been irritable, visionary, and had speculated in mines, real estate, and in other ways entirely different from his former conservative manner, had always lost and never cared for his investments. He died a short time after my arrival at his house. As his attack came on suddenly without warning, I was requested to make the necropsy, did so, and at a stated meeting of the New York Pathological Society, the following report occurs in the transactions published in the New York Medical Record, June 1st, 1874, page 302.

ATHEROMA OF CEREBRAL ARTERIES—APOPLEXY AND CONVULSIONS FOLLOWING SUN-STROKE.

Dr. Leale exhibited the brain, heart, and kidneys of a gentleman whom he saw for the first time on the Saturday previous, and who died shortly after in convulsions. The patient first suffered from obscure cerebral symptoms in 1864, following an attack of sun-stroke. He went on reasonably well, however, until September last, when he suffered from an attack of facial paralysis of the left side. This was in time entirely relieved, and nothing unusual occurred until the attack of convulsions referred to. When Dr. Leale saw him during one of the paroxysms, he discovered partial paralysis of the right side, with dilatation of the left pupil. The attacks came on at intervals of every fifteen or twenty minutes until death. The urine was examined during the visit, and was found to be heavily loaded with albumen.

At the autopsy the membranes of the brain were found adherent at the superior portion of the middle lobes of the cerebrum. There was on the left side a very large clot,



completely filling the fissure of Sylvius. The arteries of the circle of Willis presented a moderately healthy appearance, but the arteries beyond were in an atheromatous condition. The anterior and posterior branches of the middle cerebral were found completely occluded by atheromatous deposit. The middle branch of the middle cerebral was also found occluded for a quarter of an inch, and between this plug and the middle cerebral artery, at its termination, was a fissure an eighth of an inch in length, through which a hemorrhage occurred. The heart weighed one pound one ounce and one drachm (*Avoird.*), and measured five inches in length by seven in breadth. It was covered with a large mass of fat. The liver was large and waxy. The gall-bladder contained a glistening calculus about the size of a pigeon's egg. The right kidney weighed five ounces, the left seven and three quarter ounces; on the surface of the latter were several grayish patches, composed of broken-down tissue and oily matter. The patient had arcus senilis, well marked. There was a large deposit of atheroma in the aorta and coronary arteries. The urine, which was examined before death, was of a slightly acid reaction, had a sp. gr. of 1.005 and contained a large quantity of albumen and casts. The brain weighed fifty-four ounces.

His wife told me that after his sun-stroke, he had frequent attacks of severe headache, and that he was a changed man physically as well as mentally. He had photophobia, as well as great intolerance of either solar or artificial heat, also impaired digestion, and impaired eyesight. He was nervous, irritable, and over-anxious about trivial affairs, and was constantly regretting lost opportunities, but still made no effort to do better for the future. In fact, the ten years succeeding his sun-stroke had been, as she expressed it, a "living death."

In the discussion on sun-stroke at London in 1881, Sur-

geon-Major Staples, A.M., M.D., who had served at Nowshera, a station having a bad reputation for heat, apoplexy, or insolation, and who witnessed there in 1867 an epidemic of the disease, gave examples of the exhaustion from great heat in those having fatty degeneration of the heart, and, as a characteristic case, gave the following history :

“ In the hottest part of the year 1875, I, with two other officers, accompanied the then Lieutenant-Governor of Bengal in a ride from Shillong to Gowhatti, in Assam, a distance of over sixty miles. We started after early breakfast, and the journey was completed in about eight hours. All was well while we galloped through the Shillong uplands, but when we descended into the lower ranges, bordering the valley, the heat became intense, and one of the party (a very stout officer of the police) soon showed signs of exhaustion. He persevered, however, but, after some miles in a narrow and close valley, he succumbed, and fell from his horse insensible.”<sup>1</sup>

Mr. Russel,<sup>2</sup> when in charge of the 68th Regiment in May, 1834, gives a graphic account of how it is easy to cause sun-stroke, by the following incident :

The funeral of a general officer being about to take place, the men were marched out at an early hour in the afternoon, buttoned up in red coats and military stocks, at a season, too, when the hot land winds had just set in, rendering the atmosphere dry and suffocating even under the shelter of a roof, and when the sun's rays were exceedingly powerful. After having proceeded two or three miles, several men fell down senseless. As many as eight or nine were brought into hospital that evening, and many more on the following day. Three men died—one on the spot, and two within a few hours.

The anatomical characters of sun-stroke are so admira-

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<sup>1</sup> Transactions International Medical Congress, London, 1881.

<sup>2</sup> Chambers' Encyclopædia, vol. ix., p. 215.

bly shown by Sir Joseph Fayrer in the recent edition of Quain's Dictionary of Medicine that I quote from him for the purpose of contending that, after all other means have failed, I believe a small proportion of the otherwise fatal cases may be restored by phlebotomy.

Sir Joseph Fayrer states that: "In cases where death has taken place suddenly, as from shock, there is no very remarkable appearance. The heart may be found firmly contracted, but not always so—it may be flaccid. The lungs and the brain and its membranes may be found somewhat congested, but not invariably. As in cases of shock, the venous trunks, especially those of the abdomen and the right side of the heart, may be found too full of blood, and the pulmonary vessels may be overloaded with blood. The blood itself is dark and grumous, and is found effused in patches of ecchymoses, and, indeed, rendering the blood more or less livid; the coagulability of the blood is also impaired, and it is wanting in oxygen."

Accepting this array of the anatomical characters of sun-stroke, how better can they be quickly relieved in otherwise fatal cases than by phlebotomy coupled with the effort to introduce as much pure cold water into the circulation as possible by copious injections into the gastro-intestinal canal and through the skin, by douching the entire body from head to feet with cold water. The case I cite of recovery by this method, I firmly believe would never otherwise have been restored if blood-letting had not been resorted to.

In regard to phlebotomy as a remedial measure after sun-stroke, I have only seen one instance where I believe it was necessary, and where any benefit was apparently the direct result of bleeding. In this case, it was the only resource that could relieve the distressed heart and diminish the intense pressure on the veins as seen by the face and neck, and which would probably have ended in

cerebral stasis. This, we know, if for a few hours continued, might cause serous effusion, and end in structural lesions of the delicate capillaries and of the brain substance, and would in the future place the unfortunate with the invalids whose diseases are classed under the generic name of neuroses.

I willingly grant that the general directions not to resort to phlebotomy in cases of sun-stroke are safe; but I believe there are exceptional instances where the judgment of a skilful man will prompt this means as the only one whereby life can be prolonged, and perhaps lead to the complete cure, by quickly relieving that condition of cerebral capillary stasis, which must precede organic structural change of the brain or its membranes.

*Illustrative Case of Bleeding as a Remedial Measure after Sun-stroke.*—This man, I may here state, I observed for many subsequent years. He represents the only illustration of apparent complete recovery from sunstroke within my knowledge.

Peter Gallagher, West 54th street, five feet and eight inches, weight one hundred and sixty, aged forty-three years. He was a florid, red-haired perambulating lemon-vendor, exposing himself at all hours to the direct rays of the New York mid-day sun. He was a rapid walker, a hearty eater, drank whiskey frequently to excess, and lived a very irregular life. During one of our most oppressive, sultry days, he suddenly dropped on the side-walk, at noon, and in a few minutes was seen by me as he lay where he fell. His pupils were very much contracted, ocnjunctival blood vessels very much congested, the blood being apparently in a condition of stasis. His face was livid, and no pulsations could be detected at the radial arteries. His skin was intensely hot and dry. He remained unconscious for three hours.

Cold water was abundantly poured over his head and body, while he was left in the recumbent position.

After waiting a sufficiently long time, and not seeing any improvement, I concluded to open the median cephalic vein, and did so, by an oblique free incision. No blood would flow, as its rapid coagulability plugged the opening, until, after several minutes, pressing along the course of the veins from the hand towards the elbow, and rubbing the arm from the shoulder downwards, a stream followed. I allowed the bleeding to continue, observing its effects. It appeared to me, by observing the conjunctival capillaries, conclusive that the tendency to stasis was diminished, until sixteen ounces had escaped, and by the time sixteen ounces had escaped the embarrassed heart and circulatory apparatus resumed its work in the extremities. The cold-water affusions to head and body were continued and half an ounce of brandy given as soon as he could swallow; these, followed by copious draughts of cold water, produced a rapid recovery. A saline cathartic, in a few hours, relieved the constipated bowels, he was kept in a dark, cool room, and was fed on fresh milk; in less than two weeks, convalescence was apparently complete.

That man is now alive and, to all appearances, as well as before his sun-stroke.

The effects of sun-stroke have by some been mistaken for inebriety, but the differential diagnosis to a physician is so plain that the limits of this paper forbid the discussion.

The previous history of a well person suddenly stricken down on a hot day, the firmly-contracted pupil, the suffused conjunctiva, and the elevation of temperature above  $104^{\circ}$  (other diseases excluded) render the diagnosis almost certain.

#### SUN-STROKE IN THE WHITE AND DARK RACES.

It is supposed by many that the dark races bear the direct rays of the sun with comparative impunity. This, I must



confess, was my own opinion, until I searched the literature and statistics of the subject, when I found that, out of every seven hundred and sixty-two of those taken sick among our colored troops, during the war, one was sun-struck, and about one in ten of those affected died; while among our white troops one in every six hundred and twenty-nine cases of sickness was recorded as sun-struck, and of those affected, one out of twenty-five died, thus showing that the blacks had two and one-half times the mortality of the whites after being sun-struck.

Sir Joseph Fayrer believes "that the dark races bear the direct rays of the sun better than Europeans, but, if exposed to a high enough air temperature, suffer like others; and that, probably, Mongolians exposed to the same amount of heat in the hot winds would suffer like other natives of India."

Sun-stroke, comparatively speaking, is immediately fatal in about one in ten cases.

Sun-stroke nearly always gives a premonitory warning, by a slight chill or rigor affecting the entire body, a condition most of us have frequently seen both in man and in the horse. One attack makes the subject more susceptible to another. Sun-stroke as a cause of insanity is now well recognized, and numerous cases could be cited to prove this conclusion.

#### SUN-STROKE AS A CAUSE OF SUICIDE.

For a number of years, I have noticed the close relation between the increase of suicides in New York City and the oppressive, sultry days of summer; and also, that in these cases the suicidal impulse is generally of short premeditation. During the past week, I visited a widow of a suicide who gave his wife his usual parting morning-kiss, with a cheerful good-by. He was a prosperous man, yet the sudden impulse must have seized him, for within an hour

he had sent a bullet through his brain. This man, several years before, had been partially sun-struck.

The following history is a very common one in New York City :

The deceased, a German, was about thirty-eight years of age, and had been employed as a waiter for the past twelve years, which position he left on the first of May, 1882. Since then and until a few days ago he lived privately with his family. About four weeks ago he received a sun-stroke. Though recovering from this attack, he seemed to have suddenly become very despondent in mind, and his physician recommended him to engage in some active employment as soon as possible. Last Monday he bought out a well fitted-up restaurant and paid for it. Since he took possession of the place, it has been his habit to sleep in the next house, closing the restaurant at three o'clock in the morning. At half-past seven o'clock this morning, the waiters came as usual, expecting to find the place open, but on the contrary, discovered that it was locked and that the owner was nowhere to be found. By the aid of a locksmith an entrance was effected, and the missing man was found hanging from the top of a partition, dead. He left a wife and four young children. His wife stated that she could think of no reason for his committing suicide, except that his mind was unsettled, and she attributed that to the sun-stroke received a month before.

Medico-legally considered, sun-stroke is of very great importance; only a very small proportion of those affected will ever be perfectly restored to former health.

While in the parlor of a large hotel at Lake George recently, I made the above remark in response to a general question put to me, and before I left the room a lady came to me saying that all her trouble began with sun-stroke several years previous. On examining her, I easily saw evidences of incurable brain disease.

In the treatment of sun-stroke the following indications are always to be borne in mind:

Reduce the temperature of the body to as near 100° Fah. as possible. Maintain the heart's action by a stimulant; in comatosed cases the vapor of ammonia and camphor may be applied to the nostrils in order to prevent sudden death by paralysis. Overcome the tendency to coagulability of the blood, and rapid disintegration of its globules, by introducing into the circulation pure cold water to replace the lost serum, and thereby overcome the condition of capillary stasis. For the subsequent cerebral hyperæmia give sodium bromide in full doses, and aconite to quiet the excessive irritability of the heart, and quickly get the brisk action of a cathartic.

Of all remedial agents pure cold water is the most important. I have noticed a change in the unconscious state in a very short time when the constant cold douche has been given from head to foot over the entire body, and also when water was introduced into the stomach and intestines by the ordinary syringe. If this were oftener done, I believe more lives would be saved.

The discussion was participated in by Messrs. Avery and Eller, the former relating his own experiences of an attack of sun-stroke, the latter admitting the excellent character of the paper, but failing to recognize much of a medico-legal character in it. Dr. C. S. Wood related his experience of sun-stroke during the war of the Rebellion, and referred to the differential signs of alcoholism and intoxication. Dr. Spitzka spoke on the same aspect of the subject, and Dr. Leale, in closing the discussion, stated that he had intended to be suggestive rather than explicit regarding the possible legal relations of sun-stroke.

Under the head of new business, it was moved, seconded, and carried that the amendments offered by the Committee on By-Laws take the usual course. Drs. Jacobus, Spitzka, and Mr. Avery offered amendments to the By-Laws, to be acted upon at the following meeting.<sup>1</sup> It was then moved, seconded, and car-

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<sup>1</sup> See minutes of tenth regular meeting.

ried that the Secretary's specification on the notice of the next meeting, that amendments to the By-Laws were to be acted on at that meeting, be a sufficient notice of such proposed amendments.

The nominations of officers and trustees for the ensuing year then took place. The following gentlemen were nominated: For President, Hon. Wm. Barnes; for Vice-President, Dr. E. J. Birmingham, Dr. C. A. Leale (declined), Dr. C. S. Wood (declined); for Secretary, Dr. N. E. Brill; for Financial Secretary, Max T. Eller (declined); for Corresponding Secretary, Dr. Jean F. Chauveau; for Treasurer, Dr. E. C. Harwood; for Trustees: Dr. E. C. Spitzka, S. B. Livingston, Esq., H. W. Sackett, Esq., Dr. Charles A. Leale (declined), ex-Judge Amos G. Hull, Esq., Dr. R. Mollenhauer (declined), E. H. Benn, Esq., Chas. H. Kitchell, Esq., D. M. Shaw, Esq., Dr. J. H. Fruitnight, Dr. Graeme Hammond, Dr. J. J. Henna, Col. C. W. Moulton, M. L. Hollister, Esq., Dr. R. Newman (declined), Dr. A. M. Jacobus (declined), Max F. Eller, Esq. (declined).

The nominations were, by motion, closed after the nominations for each successive office had been made, as above recorded. It was next moved and seconded that the Secretary be authorized to have the list of nominees sent to each member of the Society at as small an expense as possible, so as to comply with the provisions of the By-Laws. This motion was amended to the effect that such notice contain the ordinary notice of the next meeting. The motion, as amended, was then carried.

The President then presented to the Society, on behalf of Dr. E. C. Spitzka, a copy of the latter's work, entitled "The Diagnosis, Classification, and Treatment of Insanity." On motion, the thanks of the Society were tendered Dr. Spitzka for the donation, and on further motion, the Society adjourned.

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*Regular Meeting, December 13th, 1883.*

The tenth regular meeting of the Society was held at the usual place and time, the President in the chair. The minutes of the preceding meeting having been read, Mr. Eller moved to have "declined" inserted after his name on the list of nominations; seconded, but the motion was lost and the minutes ordered adopted as read, there being no objections. The Secretary of the Board of Trustees then read their report. They elected Dr. Spitzka as temporary President, reported their next meeting at the office of Dr. Spitzka, 137 East 50th Street, at 8 P.M., and recommended for election to active membership:

W. H. H. Russell, Esq., 206 Broadway,  
Henry Howard, M.D., F.R.C.S.E., of Montreal.  
and for honorary membership : Dr. Pinard and Dr. Henry Nachtel,  
both of Paris, France.

The report was then, on motion, accepted.

The balloting for the candidates for active membership then took place and resulted in the unanimous election of Mr. W. H. H. Russell, and Dr. Henry Howard.

The balloting for Officers and Trustees for the ensuing year then engaged the Society's attention and resulted in the election of the following :

President, Hon. Wm. Barnes.

Vice-President, Dr. E. J. Bermingham.

Secretary, Dr. N. E. Brill.

Corresponding Secretary, Dr. J. F. Chauveau.

Treasurer, Dr. Harwood.

Trustees, Dr. E. C. Spitzka, S. B. Livingston, Esq., H. W. Sackett, Esq., D. M. Shaw, Esq., Dr. J. H. Fruitnight, Dr. J. J. Henna.

The election for Financial Secretary was by motion postponed and ordered to be taken up after the consideration of the amendments. Dr. Mollenhauer and Mr. Benn acted as tellers.

The Society, while the tellers were counting the votes, proceeded to the consideration of miscellaneous business, a motion to that effect having been carried. The resignations of Messrs. G. P. Avery and O. J. Hochstadter having been read, were by motion accepted. It was then moved, seconded, and carried, that the Secretary be instructed to inform the Chairmen of Standing Committees that the by-laws required them to hand in a written report at the January meeting of their work. The consideration of the amendments then occurred and resulted in the adoption of the following changes, so that the articles amended read as follows :

#### ARTICLE III.

§ 4. A candidate for active membership shall first be proposed to the Trustees, at his own request, signed by him and indorsed by two active members in good standing of *the same profession*.<sup>1</sup> Such request, etc.

§ 5. *Omit entirely.*

§ 6. *Change to § 5.*

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<sup>1</sup> The italics refer to the amendments.



## ARTICLE IV.

§ 2. The President, and in his absence the Vice-President shall preside at the meetings of the Society. *In the event of a vacancy in the office of President, the Vice-President shall become the President for the unexpired term.*

§ 3. The Secretary shall keep the minutes of the Society and the roll of members, send out notices and perform all other duties usually performed by secretaries of scientific societies. He shall also give each member at least three days' notice of every meeting.

*(Section ends.)*

§ 5. The Financial Secretary shall collect the initiation fees and assessments of members, and transmit the amount collected at the end of each month to the Treasurer. He shall report in writing his receipts and transfers at each regular meeting of the Trustees, and make an annual report in writing to the Society at the regular meeting *in January*.

§ 6. The Treasurer shall receive and deposit, in the name of the Society, all moneys transmitted to him by the Financial Secretary, in a bank designated by the Trustees, unless otherwise ordered by them, and pay all bills and other indebtedness of the Society, after audit and approval by the Trustees. He shall make a report in writing of his receipts and payments at each regular meeting of the Trustees, and an annual report in writing to the Society at the regular meeting succeeding the annual meeting *in January*, and oftener whenever called upon by the Society or the Trustees.

## ARTICLE V.

*Trustees.*

§ 1. There shall be *nine* in the Board of Trustees, *four* chosen from the medical or chemical, and *four* from the legal profession, and the *ninth* from that profession to which the President of the Society at the time being does not belong. They shall meet *between the fifth and tenth days preceding each regular meeting of the Society*. They shall direct and supervise the business of the Society, subject to its orders and instructions. They shall have charge of and preserve the property of the Society, and perform such other duties as are imposed upon Trustees of incorporated bodies by law. They shall annually choose a President and Secretary of their body. The Secretary shall enter in a proper book a record of the proceedings of the Board and give all the required notices.

The President shall call a special meeting of the Board at the

written request of three members thereof, and shall at each regular meeting of the Society report to it upon all subjects ordered to be reported by the Board, and the *time* and place of the next meeting of the Board. It shall make an annual report in writing to the Society at the regular meeting *in January*, covering in full detail all the business done by it not specially reported, the amounts of money or property received, the expenses of the Society, and the balance of property or money on hand and where deposited.

§ 2. Four members of the Board of Trustees shall constitute a quorum thereof.

§ 3. Any Trustee who shall fail to attend two successive regular meetings of the Board of Trustees without an excuse satisfactory to the Board shall be deemed to have vacated his office, *and shall be so reported at the next regular meeting of the Society.*

#### ARTICLE VIII.

*Omit § 3.*

#### ARTICLE XI.

§ 3. All nominations for offices to be filled at the annual election, shall be made at the regular stated meeting next preceding such election, and the names of the nominees, together with notice of such election, shall be given to every member of the Society at least five days before said election.

#### ARTICLE XIII.

##### *Order of Business.*

§ 1. At the regular stated meetings of the Society, the following shall be the order of business:

1. Calling the Meeting to Order.
2. Reading of Minutes.
3. Reports of Committees and Trustees.
4. Election of New Members.
5. Reading Paper of the Evening, and Discussion.
6. Unfinished and New Business.
7. Adjournment.

Except that at the December meeting, the election of officers shall immediately precede the *election of new members*, and except that at the stated meeting *in January* no paper shall be read, but the reports of the officers and the addresses of the retiring and incoming Presidents shall take its place.

The balloting for Financial Secretary then took place and Mr. Max F. Eller was elected.

It was moved and seconded that the Report of the Committee on Publication of the Society's Transactions be then taken up, amended, and after its consideration the election of three more Trustees take place, as provided by the new change in the By-laws. The motion as amended was carried.

Dr. Spitzka, the Committee on Publication of Transactions of the Society, then read his report, all the recommendations in which were by motion accepted, and by further motion adopted. The thanks of the Society were extended to the editors of the "AMERICAN JOURNAL OF NEUROLOGY AND PSYCHIATRY," and especially to Dr. McBride, for his generosity in regard to the printing of the transactions:

"Your committee respectfully reports the following in relation to the publication of the transactions of that year of the Society which ends to-night.

"As most of the members are aware, the history of this matter is partly of an unofficial character. If we had been compelled to await official initiative and action, we would have either been unable to effect a publication or to effect it only at extravagant cost. When this body was organized—on the spur of the moment as it were—without funds, without definite prospects as to membership, and with some hope on the part of a minority among its founders, that a more successful attempt at purifying the medico-legal atmosphere elsewhere, might render the continued existence of this Society as a separate body unnecessary, it was not thought advisable to commit the Society as such to an undertaking whose eventual cost could not well have been foreseen. Several members interested in the welfare of the Society guaranteed the cost of the reprinting of the earlier proceedings, in the anticipation that the Society would assume the burden when able. A continuance of the guarantee was, however, found to be unnecessary, as the success of the journal in which the proceedings appeared enable its proprietor to make the advantageous offer to be hereinafter detailed.

"The time seems now to have come for making permanent arrangements for the publication of our future proceedings, and for the preservation and distribution of the publications already made. The Society of Medical Jurisprudence is established on a firm financial basis, has a large and growing roll of members, and its continued existence seems to have become an imperative necessity if a forum for scientific medico-legal discussion is to be preserved in this community. The Board of Trustees have hence deemed it proper to recommend the adoption of the publication of our

transactions as reprinted from the AMERICAN JOURNAL OF NEUROLOGY AND PSYCHIATRY.

"Thus far the reprints, of which a copy is herewith submitted, consists of 156 pages of matter. As only three of the four quarterly numbers of the journal have appeared, and the fourth has been held back in order that it may contain the close of one year's proceedings, the total number of pages in the volume will be about two hundred and fifty. This volume will contain the inaugural address, and ten original papers read before the Society, some of which are of the very highest order of merit. These original contributions are printed in larger type. The discussions on them as well as the other proceedings are printed in long primer type, and have been compiled partly from the Secretary's minutes and partly from notes furnished by members of the Society. It is believed that they give a fair picture of the main events of our history during the year.

"There are in all three hundred copies of these reprints, the expenditure of the reprinting of which will be between \$150 and \$180. Owing to the kindness of Dr. T. A. McBride, the Society will not be expected to pay for these reprints under any other circumstances than those related in the subjoined suggestions.

"There are, however, some items of expense which the Society would be compelled to assume immediately, in case of the adoption of any of the suggested plans. These are the printing of a title page and index, as well as binding. The following estimates, which are approximate, and which are rather above than below the contemplated cost, will give some idea of the amount of the appropriation which would be required for this purpose. For printing title page and index for the three hundred copies \$12, for binding in paper, one hundred copies \$8, total \$20.

"There are at present on the roll the names of 89 members who have met all their obligations, and are in good standing; by the time the proceedings would be ready for distribution, this number will undoubtedly have reached a hundred and as many copies would of course be required to be bound in paper.

"As to the advisability of binding any considerable number of the transactions in cloth or other more expensive material, your committee believes that this should depend entirely on voluntary subscription. A number of members have expressed their desire and willingness to take from one to ten extra copies bound in cloth, at one dollar and a half per volume, or bound in paper at one dollar a volume. It is suggested, as the Society is indebted to the senior editor of the journal mentioned for a liberal

indulgence, in reference to the conditional remittance of the cost of reprinting, that it would be proper to devote the sum yielded by such subscription, after deducting the cost of binding, to his total or partial reimbursement, and not to attempt making the sale of the 'transactions' a source of profit, until the Society shall have cancelled all obligations to private individuals.

"The printing of three hundred copies of our proceedings printed as they are, would, under any other arrangement than that of reprinting, have cost between four and six hundred dollars. The number above given was selected as it was supposed that one hundred copies would be required for distribution to members, one hundred be taken by subscribers, and the rest required for exchanges and for members joining the Society in the future.

"It is respectfully suggested by your committee :

"1st. That twenty dollars be appropriated from the funds in the hands of the Treasurer, for the printing of the title page and index for the three hundred copies, and the binding in paper of one hundred copies.

"2d. That these copies be distributed among the members in good standing who shall have joined the Society prior to the end of its financial year.

"3d. That the Secretary place on the card a notice inviting subscription for extra copies bound in paper, cloth, or other material and requesting members so subscribing to inform him as to the number and material desired.

"4th. That the price of a volume, bound in paper, shall be fixed at one dollar, and of a copy bound in cloth at one dollar and a half. The sums accruing from their sale to be retained by the Treasurer as a separate fund, which is to be devoted to the reimbursement of the Society for binding, and of the proprietor of the journal for furnishing reprints.

"5th. That the copies distributed to members be delivered to them at the February, March, and April meetings of the Society due notice of the fact being given, and that members not receiving them at the place of the meeting may obtain their copies at the office of the Financial Secretary at hours designated by him on the card.

"6th. That a delivery sheet be devised by the Financial Secretary, on which each member receiving a copy shall sign his name in acknowledgment of its receipt.

"7th. That the AMERICAN JOURNAL OF NEUROLOGY AND PSYCHIATRY be recognized as the official organ of this Society.

"Respectfully submitted,

"E. C. SPITZKA."



Nominations for Trustees then took place. A motion was made, seconded, and carried, that the nominations of the last meeting for Trustees stand open. Further nominations were Messrs. J. B. Clark, S. V. R. Cooper, and Dr. R. L. Miranda. The balloting resulted in the election of Drs. C. A. Leale and M. Jacobus and Mr. E. H. Benn.

It was moved and seconded that members who have not paid their dues have an extension of time until July, 1884, to do the same. Carried.

The Society then, on motion, adjourned.

## REVIEW DEPARTMENT.

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A MANUAL OF PSYCHOLOGICAL MEDICINE AND ALLIED NERVOUS DISEASES. By EDWARD C. MANN, M.D., Member of the New York Medico-Legal Society, with phototype plates and other illustrations. Philadelphia: P. Blakiston, Son & Co., 1883.

The year eighteen hundred and eighty-three seems destined to prove a memorable one in the annals of psychiatry, and this particularly with reference to America. Previously, the only treatises on insanity which even remotely defined that condition were the classical ones of Rush and Ray ; while the last twelvemonth has seen no less than four works claiming to be standard treatises on the subject, thrust upon the book-market with more or less ostentation. These works, in their chronological order, are those of Worcester, Hammond, Spitzka, and the author before us. Of Worcester's treatise, little is to be said, except that its author has made a much more faithful and profitable study of transatlantic authorities than a reviewer in the *Alienist and Neurologist*, who affects exaggerated admiration for the treatise on causes of insanity by Stearns, *because* it ignores "European biliography." Unfortunately, the worth of this book, which would otherwise prove a valuable abstract, is impaired by the peculiar medico-sectarian views of Dr. Worcester. These lead him to recommend homœopathic doses of gold in melancholia, and to indorse other equally fantastical procedures, which render it a difficult task to compare it with the other three treatises, which are written by regular physicians without any therapeutical bias. That is, unless Spitzka's condemnation of the "new French electricity," as some anxious medical advertisers are designating the glass plate grinding nuisance, is to be regarded as the outcome of a similar narrow feeling.

Each of the three remaining works has its peculiar excellencies and defects, and we find it advantageous to refer to these in order

more justly to weigh the merits of the work before us. Hammond excels in anecdotes, in rhetorical flourish, and certainly does not bother his readers by compelling them to think for themselves. His pages flow down the intellectual gullet of the student like a soothing balm, so smoothly that the chaff and wheat go down unassorted and unappreciated as to their relative worth. Spitzka's treatise requires much more effort in its mastery, though it is indisputably nearer up to the times and more in accord with modern brain anatomy and psychical physiology than its cotemporary. Both these works agree in having a visible unity in plan, and in incorporating and prominently bringing before the medical public the individual views of their writers. In these respects Dr. Mann's book differs. It is a collection of essays and quotations—the latter in many places preponderating over Dr. Mann's own writing—strung together rather loosely. It is difficult to point to any original proposition, distinctly the author's intellectual property, though it must be admitted that he has shown much originality in the presentation of the subject matter, and deserves credit for the collection and arrangement of much valuable medico-legal and historical material for future elaboration. The book attempts to cover a wider ground than the treatises of Hammond and Spitzka, which are limited entirely to the medical aspects of insanity. Dr. Mann's book is not only devoted to the "scientific and clinical," as well as to the forensic branch of the subject, but it also deals with "Allied Nervous Diseases." This titulary monstrosity reminds us of a prescription published in the daily papers, about the time when the New York public was awakened to the necessity of regulating the practice of medicine. This remarkable document contained the following peroration: "Good fur Horz-medecine and other dizeases."

In order to illustrate the defects in arrangement in Dr. Mann's work, we will enumerate the first few chapter headings in their order: I. On Insanity in General, its History and Classification; II. The Etiology of Insanity, and the Importance of its Early Recognition and Repression in the Incipient Stage; III. Prevention of Insanity; IV. Diagnosis and Prognosis of Insanity; V. Civil Incapacity, Legal Tests of Responsibility—Hints for Giving Testimony, Expert Testimony, and the Functions of Experts in Insanity; VI. General Paralysis of the Insane (Dementia Paralytica); VII. Idiocy—Dementia—Folie Raisonnable (Reasoning Mania); VIII. Mental Responsibility and the Diagnosis of Insanity in Criminal Cases; IX. The Histology and Functions of the Brain; X. The Pathology and Morbid Histology of Acute and

Chronic Insanity. The author here slips backwards and forwards, slicing up medico-legal sausages between the clinical sandwiches, in alternate sections. But more remains behind; the succeeding chapters deal with the: "XII. Treatment of Insanity"; "XIII. Insanity in the Middle States"; "XIV. Provision for the Chronic Insane"; "XV. Lunacy in England and Scotland"; and then the author gets back again to "XVI. The Necessity for a New Method of Introducing Expert Testimony in Criminal Trials where Insanity is Alleged as a Defence."

The second part of the work treats of the nervous system in general, its development, dipsomania, hysteria, epilepsy, chorea, vertigo, spinal anæmia, inflammatory diseases of the brain, neuralgia, locomotor ataxia, cerebral softening, sclerosis, electricity, spinal concussion, and we would perhaps have been able to say the rest of neuropathology and therapeutics, but that at Chapter XXXII. Dr. Mann appears to have recovered his balance, and again alighted on "The Psychology of Crime."

A valuable appendix by the author's brother, William J. Mann, of the New York Bar, on the laws of the various States of the Union relating to the care and the custody of the insane, is the best chapter of the closing part of the book. The "Bibliography" on insanity, preceding the index, while remarkably full, is not arranged according to any system, alphabetical, chronological, or otherwise, and is therefore of but little service to those whose limited time demands convenient and accessible classification.

It is unfortunate that Dr. Mann has not obtained as efficient aid as he has secured in the abstract of the various laws, in relation to other parts of his book. We refer particularly to that dealing with the "Development of the Nervous System," and "Regional Diagnosis." He opens the former subject with a citation of Mr. E. Wooten, describing in a confused way the condition of the nervous system in ascidians, the ctenophora, echinoderms, worms and insects, and concludes it, singularly enough, with the sentence, "In the vertebrata we have a vertebral column." This proposition is indisputable, but it suffers from the fatal defect of having no relevancy to what goes before.

In the next paragraph he speaks of "lampreys and hog-fishes" having a higher nervous system than the lancelet. Probably "hog" is a misprint for "hag," but in view of the freedom with which Dr. Mann throws around such terms as *annulosa*, *annulata*, *echinoidea*, *ctenophora*, etc., why could he not give us "myxinoid"? What he means by saying (p. 320) that "two lateral columns also project into the ventricle from the conjoined restiform and posterior

pyramidal tracts," in the "cod and shark," not Cuvier, Lape  de, Huxley, nor Gegenbaur could surmise.

The next passage is such a brilliant example of the abject failure which must necessarily result from an attempt to detail matters not clearly arranged in the author's mind, that we are constrained to quote the opening lines: "We next get a cerebellum and crura cerebelli added. Primarily in the brain we have a medulla, and a cerebellum, and one or two unimportant appendages. Relatively, it is higher and more complex in fishes than in the higher vertebrates. The brain is, to all intents and purposes, the developed cephalic portion of the cord. Secondarily, we have the optic lobes, which is the largest division in osseous fishes. Under the lobes are two sub-spherical bodies, separated by walls containing a cavity which is analogous to the third ventricle of the brain in man. . . . The brain of the crocodile is very small, not much larger than a human thumb, while the brain of a bird is larger both laterally and vertically, but is composed principally of the optic lobes and the cerebellum."

There is but one approximately correct proposition in this confused medley of sentences, and that is the one which relates to the smallness of the crocodile's brain. Until the best comparative anatomists shall have succeeded in determining the homologies of the fish's brain, it will be as well for authors on the human brain not to lead their readers astray on piscatorial excursions, nor to feed them on piscatorial anecdotes!

It is exceedingly unfortunate that Dr. Mann has relied on such writers as Benedict and Bastian as guides in localizing cerebral disease. His neglect of the recent researches of Exner, Nothnagel, Schiff, and Munk is not at all compensated for, as he seems to believe, by such a clause as this: "Our power to discriminate during life between lesions occupying different situations in the cerebral hemispheres is constantly increasing, owing to the able work done by our American neurologists and those of Europe"; or this: "In our own country the labors and brilliant investigations of Drs. Hammond, Seguin, Putnam, Edes, Mills, Morton, Bartholow, Webber, Amidon, Bannister, Jewell, Hughes, Hamilton, Spitzka, and others, have done a great deal towards the solution of the more difficult problems in cerebral diagnosis." Some of the gentlemen named have not put a saw to a calvarium, a scalpel to a brain, or looked through any microscope at any of their own work for from ten to twenty years past; several of them have made contributions to anatomy and localization, but they can scarcely feel honored in the company of such tyros as some of the



mentioned writers are generally admitted to be in matters anatomical.

With the kindest feelings towards the author, whose ability in the field of psychiatry we have often had occasion to commend, we are compelled to pronounce the "Manual of Psychological Medicine and Allied Nervous Diseases" a dismal failure from whatever point of view it be regarded.

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THE LAW OF SEX : being an Exposition of the Natural Law by which the Sex of Offspring is Controlled in Man and the Lower Animals. And giving the Solution of Various Social Problems; with forty illustrative portraits. By GEORGE B. STARKWEATHER, F.R.C.S. London: J. & A. Churchill, 11 New Burlington Street, 1883.

The author of this, to say the least, remarkable work ought to be thankful to his "inferior" father and to his "superior" mother for having produced the author's "superiority"; for, indeed, it requires a "superior" person to demonstrate the fallacy of those views on a subject which, as he says in his introduction, "ever since the days of Aristotle, Plato, Socrates, Hippocrates, and Galen, has been a favorite theme of discussion and speculation with the greatest minds the world has produced—among philosophers no less than physicians. Buffon, Haller, Bonnet, Cuvier, Priestley, Lamarck, Carus, Oken, Wolff, Blumenbach, and Von Baer, are among the more recent names, together with Darwin and Spencer of our own times"—and to which we ask permission to add the name of Starkweather.

It seems to us that if any law determining sex is to be regarded, such should be built up by considering first the sex of offspring in the lowest forms of life and tracing the same up to the highest; for such is the process of evolution itself. The author, however, takes a contrary view, and says "that Nature's masterpiece, Man, should be the first object of scrutiny, rather than primordial germs, the growth of plant or insect life, etc."

He proceeds by investigating the current theories and attempting to indicate the fallacies thereof. His own theory is that the sex of the child is the opposite of that of the "superior" parent. He then points out the significance of "superiority," and describes its various elements. He asserts that "cerebral development is the key to 'superiority' as understood in this work." Unfortunately, in the quotations from the various authors with which the book teems he has not selected those whose works or methods can be considered the best or as explaining the received opinion of

the present day. Citing Drs. Beard and Rockwell as "recognized authorities" to prove the presence of electricity in the animal body, he says that "they most sensibly conclude upon the point thus: "what is the relation of electricity and magnetism to life? If light, and heat, and motion, and electricity are mutually convertible, may not the nervous force also be convertible with electricity and magnetism?" Again, in attempting to explain the polarity of the body in regard to electric currents, he quotes Reichenbach and Ashburner, who find that the whole left side of the human body is charged positively, and the right side negatively, irrespective of sex. On this he attempts to explain crossed paralysis and considers such but a phase of polarity, stating that physiologists account for the same phenomenon "by *alleging* that there is a decussation or crossing of the nerves near the base of the brain. . . . Maudsley, however, very pertinently asks: "Where does the decussation of the fibres for sensation take place? and in a way which shows that he has serious doubts on the point." It is not our intention to teach either Dr. Maudsley or Mr. Starkweather anatomical or physiological facts, but we would advise the latter, before he revises his book, to study the elements of cerebral anatomy and of physiology, and perhaps some biology, as a result of which we can confidently predict material changes in his theory of sex.

Is the author aware that the development of the female genital organs is but a higher grade than that of the male; that at the early periods of embryonic life there is but one development regarding sex, and that is male? It is at this period of life that those causes operate either to retain the original development or to impress on such a further development into the female.

Our knowledge is entirely too meagre to establish any satisfactory theory of the determination of sex, and we must assert that, having inquired into the author's theory, and applying it to explain the excessive number of male and female children respectively in various families of our acquaintance, his explanation would not hold, ascribing to ourselves an equal competency to determine the "superiority" of the parents.

We believe that the author is scarcely conscious of the frailty of his argumentation, the barrenness of his facts, and his ignorance of what has been and is being done on the continent to solve the law of sex. He knows nothing of the laborious and ingenious researches of Preyer and his pupils, published in Pfüger's Archives, and if he did, would probably admit that honest, hard-work-

ing scientists are a little further from a solution of the problem than Mr. Starkweather imagines himself to be.

Until the scientists referred to shall have given us positive guidance to an exact opinion, we shall—empirically perhaps—side with the immortal bard of Avon, whose Falstaff says :<sup>1</sup>

“ I would you had but the wit ; 'twere better than your dukedom. Good faith, this same young sober-blooded boy doth not love me ; nor a man cannot make him laugh ; but that's no marvel, he drinks no wine. There's never any of these demure boys come to any proof ; for thin drink doth so over-cool their blood and making many fish-meals that they fall into a kind of male green-sickness, and then *when they marry, they get wenches.*”

#### ARCTIC CRUISE OF THE REVENUE STEAMER CORWIN, 1881.

Notes and Observations, Part 1: Medical and Anthropological Notes on Alaska, by IRVING C. ROSSE, M.D.

This sketch contains a number of psychological, neurological, and anthropological observations of no little interest to the general medical and neurological reader. Even psychiatric themes are alluded to; the case of a whaleman from the bark Daniel Webster, which was crushed in the ice, and who, after two weeks of exposure, terror, and starvation, became insane and subsequently recovered, being related. It is stated that two other persons under similar circumstances became raving maniacs and committed suicide by drowning.

Regarding the use of alcohol in the polar regions, Dr. Rosse entertains very reasonable views. He believes, contrary to certain modern reactionists, that its moderate use is beneficial in those districts. The only death from a nervous disorder among Arctic explorers which he can discover is that of Captain Hall, a teetotaler, who died of apoplexy at a comparatively early age.

Among the natives of the district visited by the Corwin, Dr. Rosse found hysteria, epilepsy, and paralysis to be common diseases. Instances of excessive nervousness also came under his notice, while chorea, suicidal mania, and cerebro-spinal meningitis figure among the disorders noted by him. These observations tend to dispose of the much-vaunted claim that “neurasthenia,” which, it is quite evident from the writings of its most recent would-be expounder, includes everything from “redundant prepuce” to Bright's disease—is a specific product of a higher civilization.

Possibly some such reflection as this occurred to the author be-

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<sup>1</sup> Second part King Henry IV., Scene III., Act IV.

fore us, for he says, "and, indeed, a distinguished medical author who sees in spiritualism a form of nervous derangement, might, after observing Shamanism and its results, be in possession of enough neurological material for a new chapter in his work on that subject." If the author has been unintentionally sarcastic here, he has at least hit the nail on the head, and appropriately stigmatized the nonchalance with which a diarrhoea of words was allowed to flow over any and every field which promised a fair crop of sensationalism, whether in the line of the prestidigitateur and trance performer, or the plagiarism of Herbert Spencer's ideas.

Regarding the intellectual character of the Esquimaux, the writer has more than a "feeble belief" that they are equal to anything they choose to take an interest in learning. The Esquimaux is not 'muffled imbecility,' as some one has called him, nor is he dull and slow of understanding as Vitruvius describes the northern nation to be 'from breathing a thick air'—which by the way is thin, elastic, and highly ozonized—nor is he according to Dr. Beke 'degenerated almost to the lowest state compatible with the retention of rational endowments.'

Dr. Rosse's observations on Esquimaux craniology are of but slight if any value. He has evidently failed to consider many of the most important criteria, and in polemicizing against the existence of a type among that race, has neglected to take into account the possibility of racial admixture. It is very much to be doubted if his delineations be correct; the outline of the skull, Figure 2, page 40, is simply ridiculous, if it does not indicate either pathological or artificial deformity; and if the figures on page 41 are correct, they indicate the existence of a cranial type among the Aleutians which is certainly remarkable and specific enough to satisfy any one.

**SCHEMATA ZUM EINZEICHNEN VON BEFUNDEN BEI GERICHTSÄRZTLICHEN UNTERSUCHUNGEN AM GEHIRN** (Diagrams for the recording of findings in the brain, in medico-legal investigations). Tübingen: Verlag der H. Laupp'schen Buchhandlung.

This, with a companion fasciculus giving diagrams of the skull, is intended to serve physicians making post-mortem observations, in the registration of focal lesions. The diagrams are excellent, and include lateral, vertical, and basilar views of the brain, mesal sections and diagrams of the hemispheres. Unfortunately sections exhibiting the internal anatomy of the brain, notably of the great ganglia and the internal capsule, are not included. It is to

be hoped that the publishers, who in their advertisement express a willingness to adopt suggestions, will supply this void, in their next edition. Their undertaking certainly deserves encouragement ; it includes schemata for aural and ophthalmological investigation, temperature and pulse charts, and indeed everything that is calculated to add to the greater accuracy of medical recording.

SEVENTH BIENNIAL REPORT OF THE ILLINOIS STATE BOARD OF CHARITIES. Springfield, Ill. : H. W. Rokker, 1883.

The functions of State boards of charities are of all sorts and kinds, supervisory, advisory, and too rarely mandatory. They are sometimes quite heterogeneous as to their membership, not infrequently including broken-down politicians.

The board presenting the above report is an exception in many respects ; its work is evidently done *con amore*, and by competent hands. It is neither servile nor hostile to the superintendents of the institution under its charge, it but seems to preserve an impartial aspect toward them. It is obvious, from a perusal of the present report, that it has had to leave much that is desirable unaccomplished, from lack of power to enforce its requirements.

There are in the State of Illinois 5,134 insane and 581 idiots, according to the census of 1880—a very reliable one, as far as Illinois is concerned ; of these, there are in the State hospitals for the insane, and the Cook County Asylum.....2,195  
In the idiot schools.....277  
In the county almshouses.....553  
In the county jails.....14  
At home and elsewhere .....2,176

5,715

The board estimates that, at the present rate of increase, there will be about 8,500 insane in Illinois in 1890. For these, there must be increased provision, and the question of increased provision in the most economical way is one of the topics discussed in the present report. It appears that, soon after the creation of the present board, a conference of the trustees of the several Illinois hospitals for the insane was held at Springfield, and at this conference Dr. A. McFarland, then Superintendent of the Jacksonville Hospital, said : " My conception of the true organization of an hospital is this : I would have the central hospital in the foreground ; at a little distance, I would have a group of houses, two stories in height each, to accommodate its forty inmates." From the germ of these ideas sprung the cottage system of providing for



the insane advocated by this board, and shown to be practicable by the construction of the hospital at Kankakee, and the annexes at Anna. The board advocates this plan not in a *doctrinaire* spirit, but with the belief based on experience that it meets the economical and other requirements of the case, providing at the expense of the State in the cheapest manner for the county insane, whose condition, even in Illinois, is deplorable. How deplorable, may be judged by the reports of the county institution farmed out to the lowest bidder, over which the board exercises inspectorial, but no other power. I cite, at random : "COUNTY OF LAKE.—The insane department was condemned in a former report. It remains unchanged, and the insane locked in their cells are much to be pitied. Four of these cells were found to be very filthy, and the odor from them was offensive. One insane man discharged from Elgin is very violent. His entire costume is a shirt and handcuffs; the handcuffs were bright and the shirt was not. Such a patient should not be discharged from a State institution, and if this board had the power to transfer which should be conferred on it, he would be returned to the hospital at Elgin." Similar citations might be made almost ad libitum. It is not strange that the board finds opposition from the county officials whose parsimony it has to fight on the one hand, but it, at first sight, seems strange that some of the asylum superintendents should covertly intrigue against it. This phenomenon is explained on reading the report of the board as to the appropriations asked for by the different institutions under its charge. The necessities are heartily seconded; the luxuries are critically analyzed. The absurd policy of putting State hospitals under local boards of trustees has had its usual fruit, the superintendent, from necessity, looks only at his own institution and fights for it; the present board proposed to have a State pathologist appointed; this conception is being quietly fought by more than one superintendent whose trustees care chiefly for a pathologist to advertise their own institution as the nursery of science. This state of things is natural, but is to be regretted, and especially in the present instance, where such an enlightened conception as that of a State pathologist shows that the board fully desires to aid the progress of science. Another topic which is discussed in full by the board is the state of the laws for the commitment of the insane in Illinois. The Illinois law provides that no one shall be committed to an asylum who shall not have been declared insane by a jury, and, "at the time fixed for trial, a jury of six persons, one of whom shall be a physician, shall be impaneled to try the case. The case shall be tried in the presence

of the person alleged to be insane, who shall have the right to be assisted by counsel, and challenge jurors the same as in civil cases." The thoroughness and character of these trials may be judged from the following citations made by the board :

There were twenty-eight cases on the insane docket of Judge Loomis, and he spent four hours in trials; fourteen were disposed of; fourteen had to go over another week." "M. M., insane from child-birth, was too ill to appear in court, and the jury visited her in jail." "It was after one o'clock when the court adjourned; there still remained a number of jail cases." "On motion of the *county attorney*, eight cases pending on the docket were dismissed, as the defendants showed signs of mental improvement." "J. D. was found not insane, but as he is more violent at times, and dangerous to himself and others, the Court promptly entertained the motion for a *new trial*, and continued the case for a week."

Even from these citations only a faint conception can be formed of the useless cruelty inflicted on the insane and their friends by this abominable "trial by jury" system. The board shows by a lengthy legal argument that the trial system as practised is not a real trial by jury, but only an inquest, and that the law is in many respects ambiguous and contradictory. Judging from the present report, the reforms as regards legislation for the insane needed in Illinois seem to be: Increased power for the State Board of Charities; abolition of the local boards of trustees and assumption of their powers by the State Board of Charities; a complete change in the law respecting the commitment of the insane; the appointment of commissions for discharge of the insane. The officers of the Illinois State Hospital for the Insane are zealous and capable, but their zeal and ability are sometimes warped by local prejudices in favor of their institution to which they must bow, or the interest of those under their care would suffer. The instance cited of the violent insane man from Elgin being placed in a county almshouse den is not the fault of the superintendent, but of parsimonious local officials to whom the prolonged care of patients in the State hospitals seems too expensive. The abolition of all local power in the management of State institutions would relieve the superintendents, much to their delight, of responsibilities thrust upon them unjustly.

Dr. J. C. Spray, in 1882-83 report of the Cook County Hospital for the Insane, says: "The responsibility of passing upon the mental condition of these people leaving the hospital rests upon the superintendent alone. There is no one to share the burden, and when we remember that, in a legal sense, these persons, after

having been once pronounced insane by the Court, remain so until the verdict of insanity is set aside by the same authority, and that Cook County is more or less liable for their acts from that time on, so long as the finding of the Court hangs over them, we can but see that the responsibility imposed upon the superintendent is, in fact, too great to be borne by one person, for in every case passed upon by him as being able to leave the asylum, the question of the welfare to life and property is involved. Though we have been extremely fortunate in the results following the dismissal of so many persons, not a single accident having occurred so far as known, it is plain that the responsibility involved in the discharge of patients should be divided. The law should be so changed as to provide for a lunacy commission, to which all cases considered by the superintendent able to live outside the asylum with safety, should be referred. The decision of such commission to be laid before the judge of the County or Circuit Court, who may or may not set aside the verdict of insanity, thereby freeing the county from any further responsibility for the acts of the person in question. This is a subject of no small importance, and should receive serious consideration."

A State commission endowed with similar powers would be regarded as a godsend by every superintendent in the State, as it would relieve him from an onerous and disagreeable duty, and would stand between him and public censure.

Considering the powers at its command, the board has done its work well, and were it only for its potent argument at Kankakee, in favor of the cottage system, would deserve the gratitude of every friend of the insane. Much of its accomplished results is due to the zeal and energy of its secretary, the Rev. Dr. Wines.

## EDITORIAL NOTES AND COMMENTS.

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### OUR THIRD VOLUME.

As the second successful year of the AMERICAN JOURNAL OF NEUROLOGY AND PSYCHIATRY is drawing to a close, it is proper for its editors to acknowledge the handsome encouragement which their undertaking has received at the hands of the medical profession. When this JOURNAL was founded, it was considered doubtful whether there would be any other quarterly of the same character in the field, owing to the retirement of Professor J. S. Jewell, so long the successful manager of the *Journal of Nervous and Mental Diseases*, from the management of that periodical. Notwithstanding the continued existence of the latter, the new journal has been steadily gaining in favor, and has but very recently been honored by the very highest encomiums from such cotemporaries as the *Lancet*.

Our staff of contributors has increased so considerably that their numerous contributions have induced a progressive decrease of the editorial departments, and this notwithstanding the increasing size of the journal. We believe, however, that the material offered has been of so generally excellent a character as to cause no regrets on the part of the reader at the change.

One of the features of the second volume is the full report of the Proceedings of the Society of Medical Jurisprudence and State Medicine, for the year 1883. By a resolution passed at a recent meeting of that society, this JOURNAL has been selected as its official organ. In this way a number of interesting papers and discussions, alone sufficient to supply a journal, is assured. In addition, our well known contributors, S. Weir Mitchell, J. S. Jewell,

Roberts Bartholow, S. V. Clevenger, J. G. Kiernan, H. M. Bannister, V. P. Gibney, Henry Howard, B. Westbrook, D. W. Brower, Burt G. Wilder, and numerous others will continue to favor us with the results of their researches from time to time.

In order to make the volume of the JOURNAL correspond to the year of the Society whose organ it constitutes, it has been found necessary to delay this number until the report of the December meeting was received. This brings the date of our appearance nearer the end than the beginning of the quarter. In order to insure uniformity in the future, the editors have resolved to issue the forthcoming volume in quarterly numbers, dated respectively March, June, September, and December.

The annual subscription for the year 1884 is fixed at three dollars.

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#### PROVISION FOR THE IOWA CHRONIC AND CONVICT INSANE.

Some years ago, owing to the crowded condition of the State hospitals for the insane in Iowa, it was determined that all the chronic insane should be returned to the county institution from which they had been taken. The state of the insane in the almshouses in any State is deplorable, and in the present case especially so. At the coming session of the Iowa legislature it is proposed to have levied a one-half mill tax which, it is estimated, will not only furnish ample funds for the erection of buildings for the chronic, but also provide for the custody, care, and cure of the convict insane in a special hospital. There is a very widespread feeling in favor of the levy of a tax for the purpose named, and there is some prospect of Iowa providing for her insane elsewhere than in almshouses.

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Dr. Sarah Stockton has been appointed assistant physician to the Indiana Hospital for the Insane. Dr. G. T. Erwin has resigned the position of first assistant physician to Central Kentucky Lunatic Asylum, and Dr. T. H. Clarke, of Hopkinsville, Ky., has been appointed to the position.



VOL. II.

ISSUED QUARTERLY.

No. 4.

THE  
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OF  
NEUROLOGY AND PSYCHIATRY

EDITED BY

T. A. McBRIDE, M.D.,

LANDON CARTER GRAY, M.D.,

EDWARD C. SPITZKA, M.D.

N. E. BRILL, M.D., ASSOCIATE EDITOR.

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NOVEMBER. 1883.

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V. Reports on Society Proceedings. These will consist of brief abstracts of the papers read and the discussions to which these give rise, at the meetings of the various societies devoting attention to Neurology and Medical Jurisprudence. Only papers and discussions of interest will be reported, and arrangements have been made to secure reports from the chief medical centres of the Union.

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VII. Quarterly reports on progress in the various branches of neurological science, namely of (a) Anatomy, (b) Physiology, (c) Patho-Anatomy, (d) General Clinical Neurology, (e) Psychiatry, (f) Therapeutics, (g) Medical Jurisprudence, (h) Anthropology.

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**Certificate of Composition and Properties of Lactopeptine by Prof. ATTFIELD, Ph.D., F.R.S., F.I.C., F.C.S., Prof. of Practical Chemistry to the Pharmaceutical Society of Great Britain.**

London, May 3, 1882.

*Lactopeptine* having been prescribed for some of my friends during the past five years—apparently with very satisfactory results—its formula, which is stated on the bottles, and its general characters, have become well known to me. But recently the manufacturer of this article has asked me to witness its preparation on a large scale, to take samples of its ingredients from large barrels and examine them, and also mix them myself, and to prepare *Lactopeptine* from ingredients made under my own direction. Doing all this with the object of certifying that *Lactopeptine* is what its makers profess it to be, and that its ingredients are of quality the best that can be obtained. This I have done, and I now report that the almost inodorous and tasteless pulverulent substance termed *Lactopeptine* is a mixture of the three chief agents which enable ourselves and all animals to digest food. That is to say, *Lactopeptine* is a skillfully prepared combination of meat-converting, fat-converting and starch-converting materials, acidified with those small proportions of acids that are always present in the healthy stomach, all being disseminated in an appropriate vehicle, namely, powdered sugar of milk. The acids used at the factory—lactic and hydrochloric—are the best to be met with, and are perfectly combined to form a permanent preparation; the milk sugar is absolutely pure; the powder known as "diastase" or starch-digesting (bread, potato and pastry-digesting) material, as well as the "pancreatin," or fat-digesting ingredients, are as good as any I can prepare; while the pepsin is much superior to that ordinarily used in medicine. Indeed, as regards this chief ingredient, pepsin, I have only met with one European or American specimen equal to that made and used by the manufacturer of *Lactopeptine*. A perfectly parallel series of experiments showed that any given weight of acidified pepsin, alone, at first acts somewhat more rapidly than *Lactopeptine* containing the same weight of the same pepsin. Sooner or later, however, the action of the *Lactopeptine* overtakes and outstrips that of pepsin alone, due, no doubt, to the meat-digesting as well as the fat-digesting power of the pancreatin contained in the *Lactopeptine*. My conclusion is that *Lactopeptine* is a most valuable digesting agent, and superior to pepsin alone.

JOHN ATTFIELD.

**LACTOPEPTINE** contains all the agents of digestion that act upon food, from mastication to its conversion into chyle, thus combining all the principles required to promote a Healthy Digestion.

One of its chief features (and the one which has gained it a preference over all digestive preparations) is that it precisely represents in composition the natural digestive juices of the stomach, pancreas and salivary glands, and will, therefore, readily dissolve all foods necessary to the recuperation of the human organism.

### FORMULA OF LACTOPEPTINE.

Sugar of Milk ..... 30 ounces.  
Pepsin ..... 3 ounces.  
Pancreatin ..... 3 ounces.

Veg. Pepsin or Diastase ..... 4 drachms.  
Lactic Acid ..... 5 fl. drachms.  
Hydrochloric Acid ..... 5 fl. drachms.

**LACTOPEPTINE** is sold entirely by Physicians' Prescriptions, and its almost universal adoption by physicians is the strongest guarantee we can give that its therapeutic value has been most thoroughly established.

The undersigned, having tested **LACTOPEPTINE**, recommend it to the profession:

ALFRED L. LOOMIS, M.D., Prof. of Pathology and Practice of Med., University of the City of New York.

SAMUEL R. PERCY, M.D., Prof. Materia Medica, New York Medical College.

T. LE ROY BATTERLEE, M.D., Ph.D., Prof. Chem., Mat. Med. and Therap. in N. Y. College of Dent.; Prof. Chem. and Hyg. in Am. Vet. Col., etc.

JAS. ATKIN MEIGS, M.D., Philadelphia, Pa., Prof. of the Institutes of Med. and Med. Juris., Jeff. Med. Col.; Phy. to Penn. Hosp.

W. W. DAWSON, M.D., Cincinnati, O., Prof. Prin. and Prac. Surg., Med. Col. of Ohio; Surg. to Good Samaritan Hospital.

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Prof. JOHN ATTFIELD, Ph.D., F.R.S., F.I.C., F.C.S., London, Eng., Prof. of Prac. Chem. to the Pharmaceutical Society of Great Britain.

For further particulars concerning *Lactopeptine*, the attention of the Profession is respectfully directed to our 32-page pamphlet, which will be sent on application.

**THE NEW YORK PHARMACEUTICAL ASSOCIATION,**

P. O. Box 1874.

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